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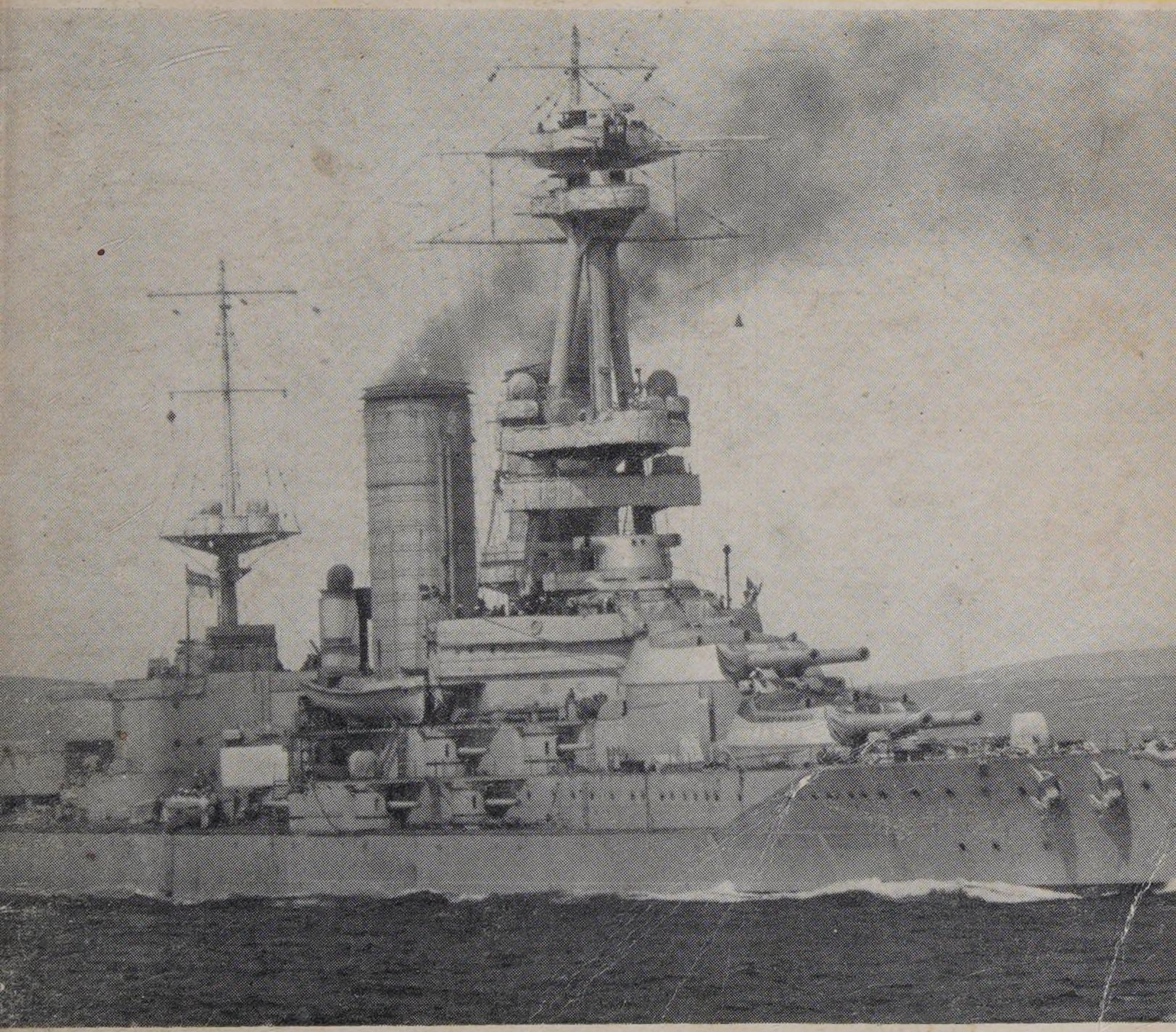

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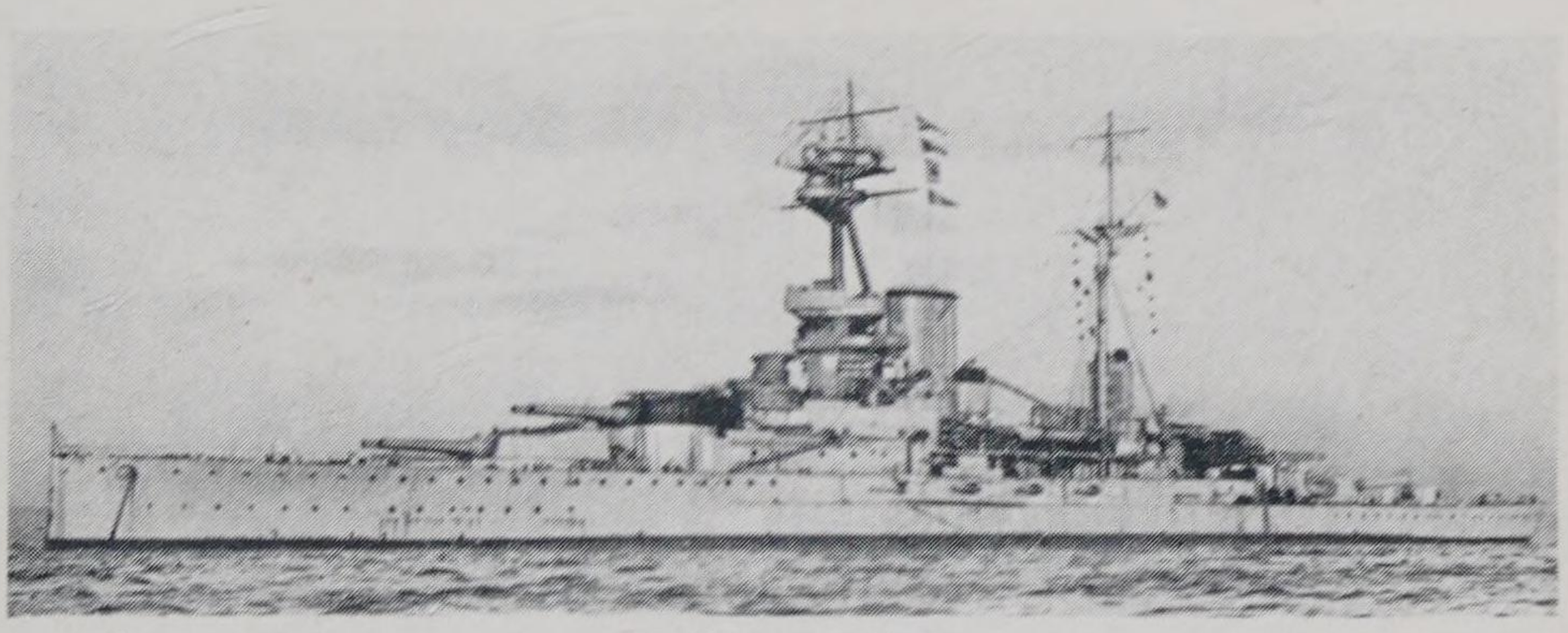

H·M.S. *Ramillies.*

1 - Battleships
(British and German Battleships and Battle Cruisers)

(Revised 1961)

H. M. LE FLEMING

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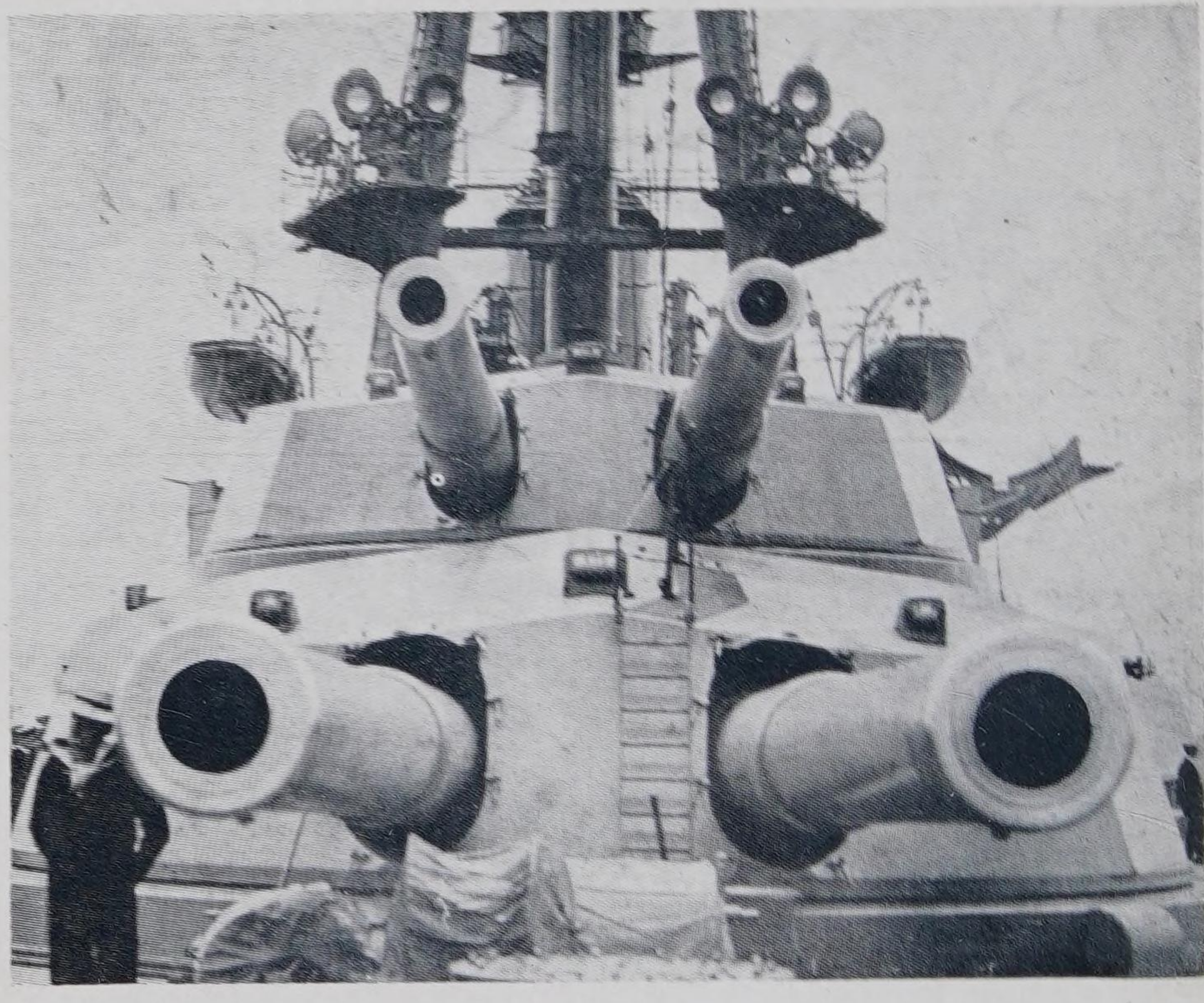
FRONT COVER

H.M.S. *Canada* — *I.W.M.*



GUARDIANS OF THE SEAS

★ *A close-up view of the after gun turrets of H.M.S. Neptune, showing the 12 in. guns.*

Introduction

INCLUDED in the following pages are the British and German post-Dreadnought Battleships and Battle Cruisers of World War I. British pre-Dreadnoughts are also summarised although soon relegated to secondary duties after the outbreak of war, many having had their big guns transferred to monitors. Armoured Cruisers, their contemporaries, are not included since, unlike Battle Cruisers, their main armament consisted of guns of smaller calibres.

The particulars given include date completed, builder and engine builder (where different), abbreviated as follows:—

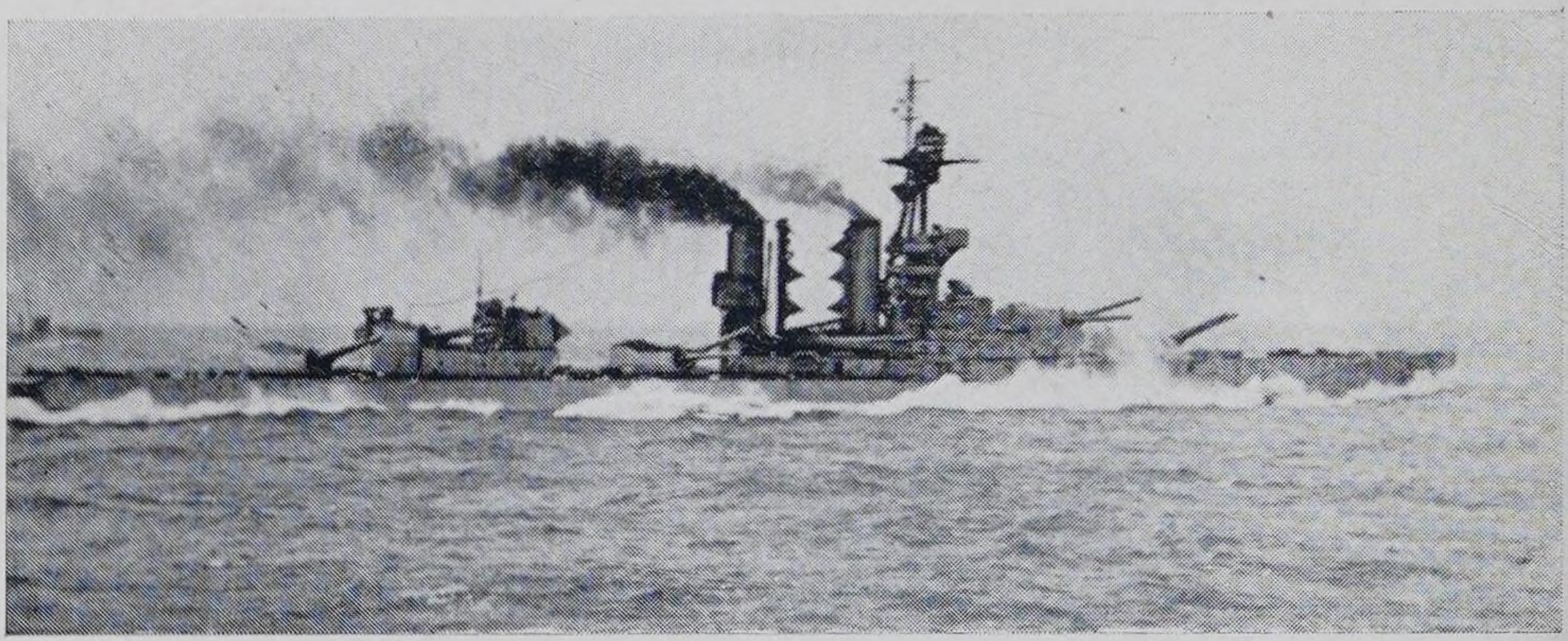
AW	ARMSTRONG WHITWORTH (TYNE).
C	JOHN BROWN (CLYDE).
C.Dy.	CHATHAM DOCKYARD.
CL.	CAMMELL LAIRD (BIRKENHEAD).
D.Dy.	DEVONPORT DOCKYARD.
F.	FAIRFIELD (GOVAN).
H. & T.	HUMPHRYS & TENNANT.
H. & W.	HARLAND & WOLFF (BELFAST).
H.L.	HAWTHORN LESLIE (TYNE).
Pal.	PALMERS (JARROW).
Par.	PARSONS (TYNE).
P.Dy.	PORTSMOUTH DOCKYARD.
Pem.Dy.	PEMBROKE DOCKYARD.
Sc.	SCOTTS (GREENOCK).
T.I.W.	THAMES IRON WORKS.
V.	VICKERS (BARROW).
WB.	BEARDMORE (DALMUIR).
Wall.	WALLSEND (TYNE).

The German yards are given in the relevant section for more convenient reference.

The normal displacement is given first and the higher full-load figure second (where published), the length overall and the beam. Details of the machinery are the type of engines, number of screws, designed I.H.P. and speed. With the latter, designed figures were often greatly exceeded in service and such cases are quoted also.

Guns (pdr.=pounder) and torpedo tubes are shown with wartime changes together with the thickest part of the armour belt and turret protection. Lastly the complements, peacetime and (where known) wartime, are shown. In addition a short paragraph is devoted to the history of each individual post-Dreadnought British Capital ship.

Since the development of the Battleship from the "Wooden Wall" to the Dreadnought took only 45 years (1861-1906) a brief outline of this period of



H.M.S. *Benbow* showing the anti range-finding baffles between the funnels.

[*I.W.M.*

intensive progress is included. Another short account of Naval Events 1906-1918 sketches in the dramatic background of history against which the great ships described played their major roles. Two of the ships described are still in existence, H.M.S. *Canada* as the Chilean *Almirante Latorre* and the German S.M.S. *Goeben* as the Turkish *Yavuz*.

Acknowledgments are due to members of the Naval Photograph Club[1] for freedom to avail myself of their vast store of detailed knowledge and photographs, to the staff of the Imperial War Museum[2], and to the following books:—

British Battleships	*Dr. Oscar Parkes.*
Naval Operations	*Julian S. Corbett.*
The World Crisis	*Winston S. Churchill.*
Jane's Fighting Ships	(1914 *and* 1919 *editions*).
Brassey's Naval Annual	(1914 *and* 1919 *editions*).
Die Deutschen Kriegschiffe	*Erich Groener*

H. M. LE FLEMING.

Other parts in this series are :— 2 Cruisers, 3 Destroyers, 4 Miscellaneous Warships and 5 Submarines.

1 Acknowledged as N.P.C. 2 Acknowledged as I.W.M.

From Wooden Walls to Steel Battleships — 1861—1893

IN 1860 the British fleet still consisted of wooden sailing ships although most of them had been fitted with auxiliary steam engines and screws during the previous fifteen years. H.M.S. *Warrior* of 1861 was our first large iron screw warship. During the next thirty years every feature of the battleship became the subject of experiment and controversy.

'Turret versus Broadside' concerned the disposition of the armament. The traditional broadside system involved a large number of small guns each with a limited arc of fire and duplication of the battery on either side of the ship. Revolving turrets on deck, on the other hand, made the maximum use of the guns. Rapid growth in the size of guns and consequent reduction in the number carried, led inevitably to the turret system, but not before the 'broadside' had been modified as a 'central battery' with a few heavy pieces which could fire from two or more ports. The turret in turn necessitated the abandonment of sail which, with the increased power and reliability of steam, had become an auxiliary except for smaller ships. At the same time the muzzle-loader versus breech-loader contest was in full swing. With big guns, breech-loading had to come, but the early breech-loaders had had many set-backs. The matter was finally settled in 1879 when a serious explosion occurred on H.M.S. *Thunderer* through double-charging a heavy muzzle-loader.

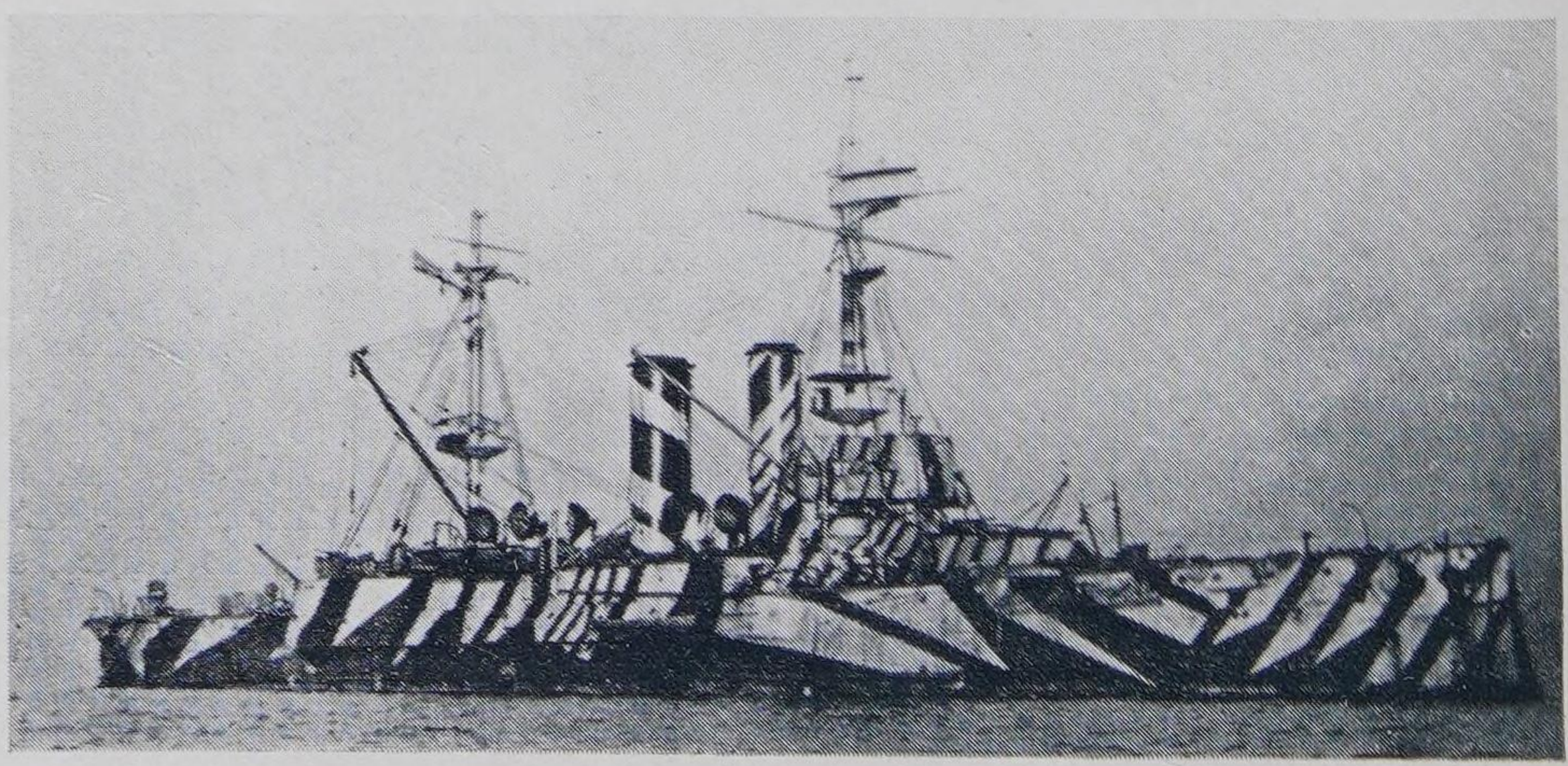
Meanwhile a new weapon, the torpedo, was being successfully developed and with it, light fast torpedo boats. As a defence the secondary armament of small quick-firing guns was introduced and disposed amidships somewhat in the old broadside fashion. Torpedo nets were also evolved as a protection for big ships when at anchor.

Steel first replaced iron in British warship contruction in 1879 and the development of special steels for armour plate was counteracted by progress with armour-piercing projectiles.

Many and varied were the earlier types of steam engines installed. By 1890 vertical compounds (three-cylinder in larger ships) were general and the triple expansion engine was coming in, at first with three cylinders and later with four (two low pressure) cylinders and four cranks for better balancing.

The first ships to include all the new features—and therefore the first "pre-Dreadnoughts"—were the 'Admiral' class of 1887-89, although to call them a class is a misnomer since individual ships differed widely. H.M.S. *Benbow*, for example, mounted two 110-ton 16.25-in. B.L. guns firing 1,800 lb. shell, which illustrates the enormous progress made since the 68 pdr. smooth bore of thirty years earlier. To save top weight these and some other ships did not have turrets, the guns being mounted on turntables which were encased in cylindrical armoured barbettes. With the 'Majestic' class of 1895-98, 12-in. guns mounted in twin turrets became standard.

Only one battleship earlier than the 'Majestics' survived to take part in the war: the old *Revenge*, one of the seven ships of the 'Royal Sovereign' class of 1892-94 which had 13.5-in. guns mounted on barbettes. Renamed *Redoubtable*, with her old guns lined up to 12-in., and fitted with anti-torpedo bulges, she joined the Monitors in bombarding the seaward end of the German lines. The range of her guns was increased to 16,000 yards by heeling the ship over when the bulges were flooded on one side.



Fifty pre-Dreadnoughts

WITH the ' Majestic ' class of 1895, battleship design attained uniformity for the first time since 1860. In the decade 1895-1905 new features appeared but they did not affect the general form. Water tube boilers with their rapid steam-raising and weight-saving qualities superseded cylindrical types, and wireless equipment was installed. From 1903 the smart Victorian livery went out. Black hulls with smart white lining and red boot-topping, white upperworks, yellow ochre funnels, masts and ventilators and all the spit and polish were replaced by sombre grey—a shadow of things to come.

The ' Majestics ' had twin funnels (side by side) but all later classes had two funnels in the usual fore and aft position. The next twenty ships were all very similar and have been grouped together in the table on p. 50. Foreign navies, under the urge to go one better, introduced an intermediate armament (7.5-in. to 10-in. guns) either in place of or in addition to the secondary armament. In our " King Edward " class of 1905-6 four 9.2-in. guns in single turrets were added to the standard armament (4—12-in. and 6-in. battery). In the later *Lord Nelson* and *Agamemnon* the secondary 6-in. guns were omitted and ten 9.2-in. were mounted in two double and one single turret on each side. These two ships actually appeared *after* the *Dreadnought* as they were in too advanced a stage to be altered. Intermediate batteries proved of doubtful value since range finding was often confused by difficulty in distinguishing the 9.2-in. from the 12-in. shell splashes. Ships with heavy intermediate batteries were often termed " semi-Dreadnoughts."

Lastly two ships, *Swiftsure* and *Triumph,* designed for Chile, were taken over whilst building. Their armament of 10-in. and 7.5-in. guns was out of step with British ships. The advent of the Dreadnought in 1906 put all earlier battleships into the category of those which could " neither fight nor run away." By 1914 Great Britain and Germany had Dreadnought battle fleets and the pre-Dreadnoughts were soon relegated to secondary duties.

Prior to about 1909 funnel bands (to distinguish ships of the same class) had been used spasmodically and to a limited extent. In that year a system which could be deduced alphabetically was standardised throughout the Navy.

MAJESTIC CLASS (Twin Funnels)

Length: 413 ft. *Beam:* 75 ft. *Displacement:* 14,900 tons.
Triple expansion. 2 screws. 12,000 h.p. 17.5 knots.
Guns: 4—12 in. 12—6 in. 16—12 pdr. and smaller.
Armour: 14 in. to 6 in. *Torpedo tubes:* 5—18 in.
Complement: 757.

Facing page: H.M.S. *London* in:—

Victorian livery (*top*).
Pre-1914 grey with standard funnel bands (*centre*).
Dazzle painting of 1917-18 (*bottom*).
7th Ship of name (1st 1657)

Name	Completed	Builder	1914–18	Sale and Scrapped
MAJESTIC	1895	P.Dy.	*Torpedoed by U21 Dardanelles*	1915
Magnificent	1895	C.Dy.	1915 Disarmed*. Transport, Storeship, etc.	1920-21
Prince George	1896	P.Dy.	1915 Dardanelles. 1916 Disarmed, Depot ship, etc.	1920-21
Hannibal	1897	Pem.Dy.	1914 Guardship, 1915 Disarmed, Transport, Depot ship, etc.	1920
Victorious	1897	C.Dy.	1914 Guardship, 1915 Disarmed*, Depot ship, etc.	1920-23
Jupiter	1897	C.	Worldwide service, Archangel to E. Indies.	1919
Mars	1897	CL.	1914 Guardship, 1915 Disarmed*, Transport, Depot ship, etc.	1920-21
Caesar	1897	P.Dy.	Worldwide service, Atlantic, Caribbean, Med. & Black Sea	1920-21
Illustrious	1898	C.Dy.	1914 Guardship, 1915 Disarmed*, Storeship.	1919-21

*The 12 in. guns from these ships were mounted on eight monitors.

CANOPUS, FORMIDABLE, LONDON, DUNCAN & QUEEN CLASSES.

Length: 430 ft. *Beam:* 74-75½ ft. *Displacement:* 12,950-15,000 tons.
Triple expansion:. 2 screws. 13,500-18,000 h.p. 18-19 knots.
Guns: 4—12 in. 12—6 in. 12 to 16—12 pdr. and smaller.
Armour: 12 in. to 6 in. *Torpedo tubes:* 4—18 in.
Complement: 750-810. (Name ship of each class in larger type).

Name	Completed	Builder	1914-18	Sale and Scrapped
CANOPUS	1900	P.Dy.	1914 Guardship S. American Stn. 1915 Dardanelles. 1916 Depot ship.	1919-20
Goliath	1900	C.Dy.	*Torpedoed at the Dardanelles* 1915.	—
Ocean	1900	D.Dy.	*Sunk by mine and gunfire Dardanelles* 1915.	—
Glory	1901	CL.	1914 N. Atlantic. 1915 Med. 1916 N. Russia. 1919 Depot ship (renamed *Crescent*).	1922
Vengeance	1901	V.	1914 Cameroons. 1915 Dardanelles. 1915 Med., E. Africa & E. Indies. 1918 Depot ship.	1920-21
Albion	1901	T.I.W.	1914 E. Africa. 1915 Dardanelles. 1916 North Sea. 1918 Depot ship.	1919

Name	*Completed*	*Builder*	*1914-18*	*Sale and Scrapped*
FORMIDABLE	1901	P.Dy.	*Sunk by U24 Channel* 1915	—
Irresistible	1902	C.Dy.	*Sunk by mine and gunfire Dardanelles* 1915.	
Implacable	1902	D.Dy.	1915 Dardanelles, Med.* 1918 Northern patrol.	1920-21
LONDON	1902	P.Dy.	1915 Med.* 1918 Minelayer. 1919 Depot ship.	1920
Bulwark	1902	D.Dy.	*Destroyed by internal explosion* 1914.	—
Venerable	1902	C.Dy.	1914 Belgian coast. 1915 Med. 1919 Depot ship.	1920
DUNCAN	1903	T.I.W.	1914 Grand Fleet and Northern patrol. 1915 Med. 1917 Reserve.	1919-20
Russell	1903	Pal.	*Sunk by mine off Malta* 1916.	—
Exmouth	1903	CL.	1914 Grand Fleet and Northern patrol. 1914 Belgian coast. 1915 Dardanelles. 1917 Reserve.	1919-20
Albemarle	1903	C.Dy.	1914 Grand Fleet and Northern patrol. 1916 Guardship Archangel. 1917 Reserve.	1919-20
Cornwallis	1904	T.I.W.	*Sunk by U32 Med.* 1917.	—
QUEEN	1904	D.Dy.	1915 Dardanelles & Med.* 1919 Depot ship	1920
Prince of Wales	1904	C.Dy.	1915 Dardanelles & Med.* 1919 Depot ship.	1920

Montagu of the Duncan class was wrecked on Lundy Is. in 1906.

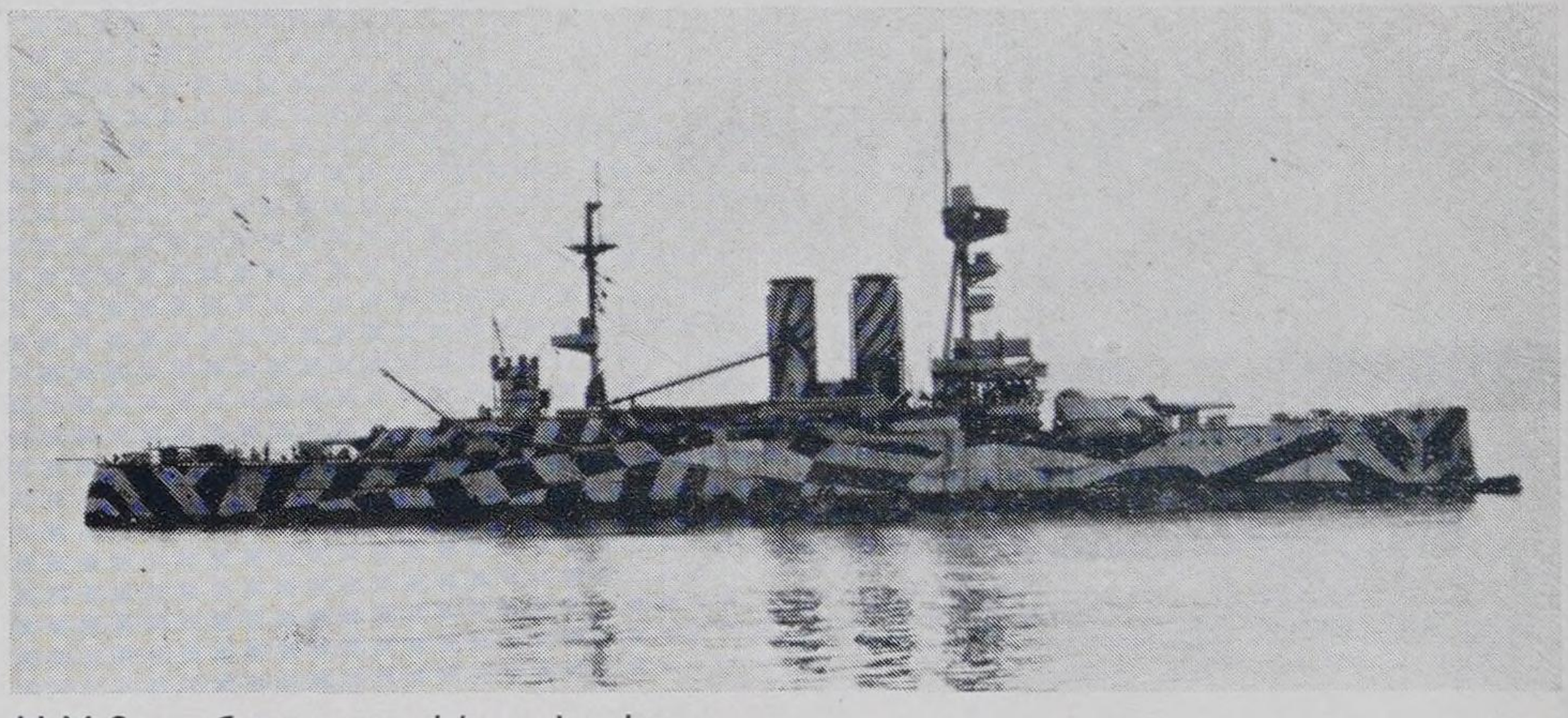
*These four ships reinforced the Italian fleet in containing the Austrian Navy, being based on Taranto from 1915-18.

SWIFTSURE & TRIUMPH.

Length: 470 ft. *Beam:* 71 ft. *Displacement:* 11,800 tons.
Triple expansion. 2 screws. 14,000 h.p. 20 knots.
Guns: 4—10 in. 14—7.5 in. 14—14 pdr. and smaller.
Armour: 10 in. to 6 in. *Torpedo tubes:* 2—18 in. *Complement:* 700.

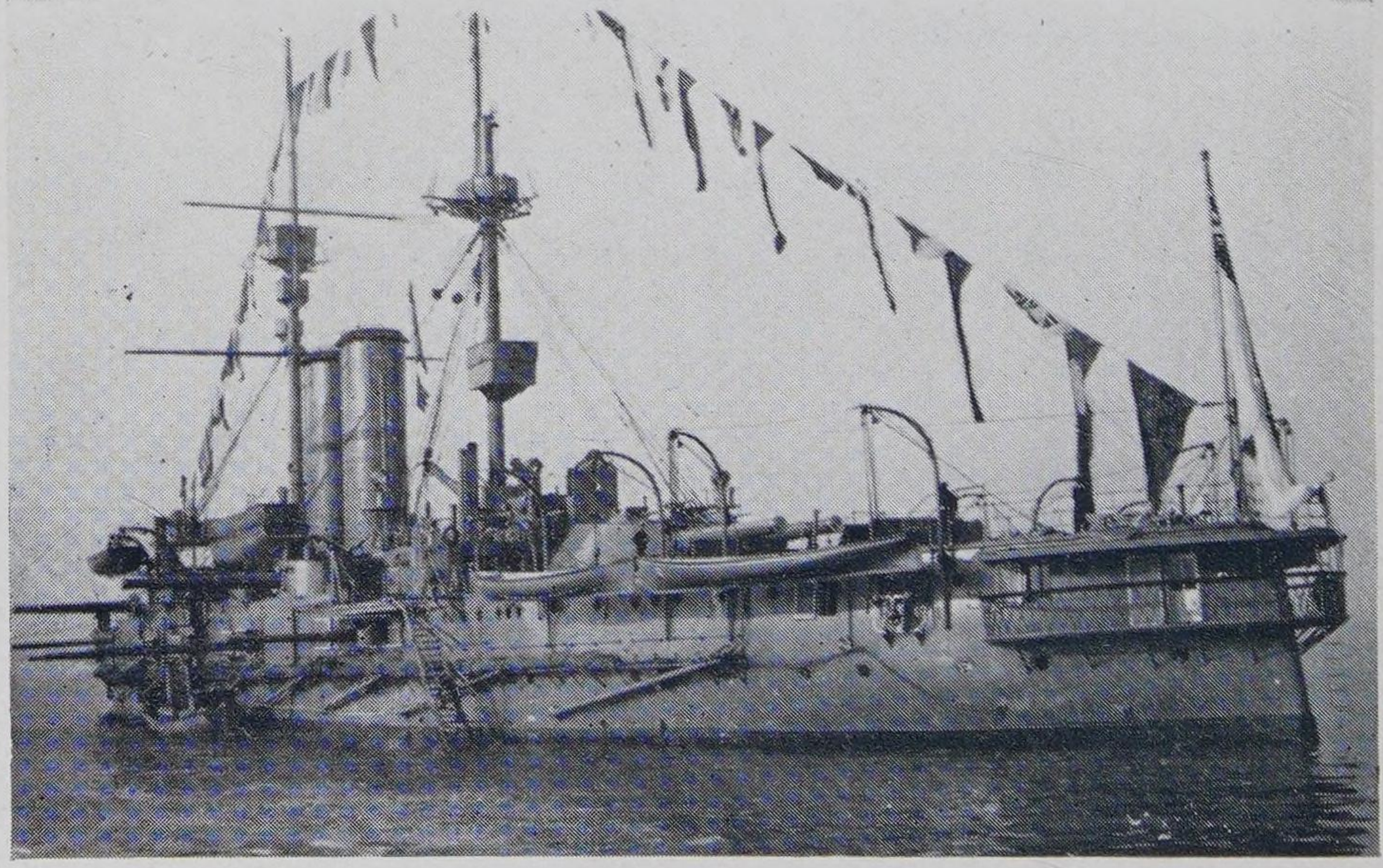
Name	*Completed*	*Builder*	*1914-18*	*Sale and Scrapped*
Swiftsure	1904	AW.	1914 Suez & Red Sea. 1915 Dardanelles. 1916 Reserve & Depot ship. 1919 Target.	1920
Triumph	1904	V.	*Sunk by U-boat Dardanelles* 1915.	—

These ships were easily recognised from their large goose-neck cranes in place of derricks, a feature commonly found on German ships.



H.M.S. *Commonwealth* dazzle painted in 1918. Note tripod mast. [*H.S. & R.*

H.M.S. *Hibernia*. The first aircraft take-off from a British warship was carried out from a seaplane runway on the foredeck.



KING EDWARD CLASS.

Length: 454 ft. *Beam:* 78 ft. *Displacement:* 17,500 tons.
Triple expansion (4 cyl.). 2 screws. 18,000 h.p. 19 knots.
Guns: 4—12 in. 4—9.2 in. 10—6 in. 12—12 pdr. and smaller.
Armour: 12 in. to 6 in. *Torpedo tubes:* 5—18 in. *Complement:* 777.

Name	Completed	Builder	1914-18	Sale and Scrapped
KING EDWARD VII	1905	D.Dy.	*Sunk by mine off Cape Wrath* 1916.	—
Commonwealth	1905	F.	1914 3rd B.S. 1918 altered* as Gunnery Training ship.	1921
Dominion	1905	V.	1914 3rd B.S. 1917 Depot ship.	1919-21
Hindustan	1905	C.	1914 3rd B.S.	1919-21
Zealandia†	1905	P.Dy.	1914 3rd B.S. 1915 Med. 1918 altered*. 1919 Depot ship.	1919-21
Africa	1906	C.Dy.	1914 3rd B.S. 1917 Attached 9th Cruiser Squadron. 1919 Depot ship.	1919-20
Britannia	1906	P.Dy.	*Sunk by UB50 off Cape Trafalgar* 1918.	—
Hibernia	1906	D.Dy.	1914 3rd B.S. 1915 Dardanelles. 1919 Depot ship.	1919-21

†Originally named *New Zealand*.
*Alterations included tripod foremasts and, in the case of *Commonwealth*, bulges as well.
At the outbreak of war these ships formed the 3rd B.S. (Battle Squadron) of the Grand Fleet, where they were known as the "Wobbly Eight." In April 1915 they were withdrawn from the Battle Fleet and in 1916 their base was changed to the Thames after the German battle cruiser raids on the E. Coast. In 1911-12 *Africa*, *Hibernia* and *London* (see above) were temporarily fitted with seaplane runways on the foredeck, the first aircraft take-off from a British warship being carried out on H.M.S. *Hibernia*.

LORD NELSON & AGAMEMNON

Length: 445 ft. *Beam:* 79½ ft. *Displacement:* 16,500 tons.
Triple expansion (4 cyl.). 2 screws. 16,750 h.p. 18.5 knots.
Guns: 4—12 in. 10—9.2 in. 15—12 pdr. and smaller.
Armour: 14 in. to 6 in. *Torpedo tubes:* 5—18 in.
Complement: 865. Tripod mainmasts.

Agamemnon	1907	WB.	1914 Channel. 1915 Dardanelles & Med. 1919 Radio-controlled target.	1926-27
Lord Nelson	1908	Pal.	1914 Channel. 1915 Dardanelles & Med.	1919-20

All surviving pre-Dreadnoughts were discarded after the War except H.M.S. *Agamemnon* which lasted (disarmed) as a radio-controlled target until 1926.

H.M.S. *Lord Nelson* in 1912. [Seward

H.M.S. *Agamemnon* in 1915 with torpedo nets out. Note mottled painting and false bow wave. [I.W.M.

Naval Events 1906-1918

IT is now forty years since the end of World War I and, although this book is concerned with ships rather than events, a brief account of the historical background is necessary for completeness. For it is a remarkable fact that the course of naval events was mainly governed by some sixty capital ships all completed in the short space of eight years (1908-1916) and the Dreadnought of 1906. After 1916 the importance of surface ships declined as submarines and aircraft became increasingly formidable rivals.

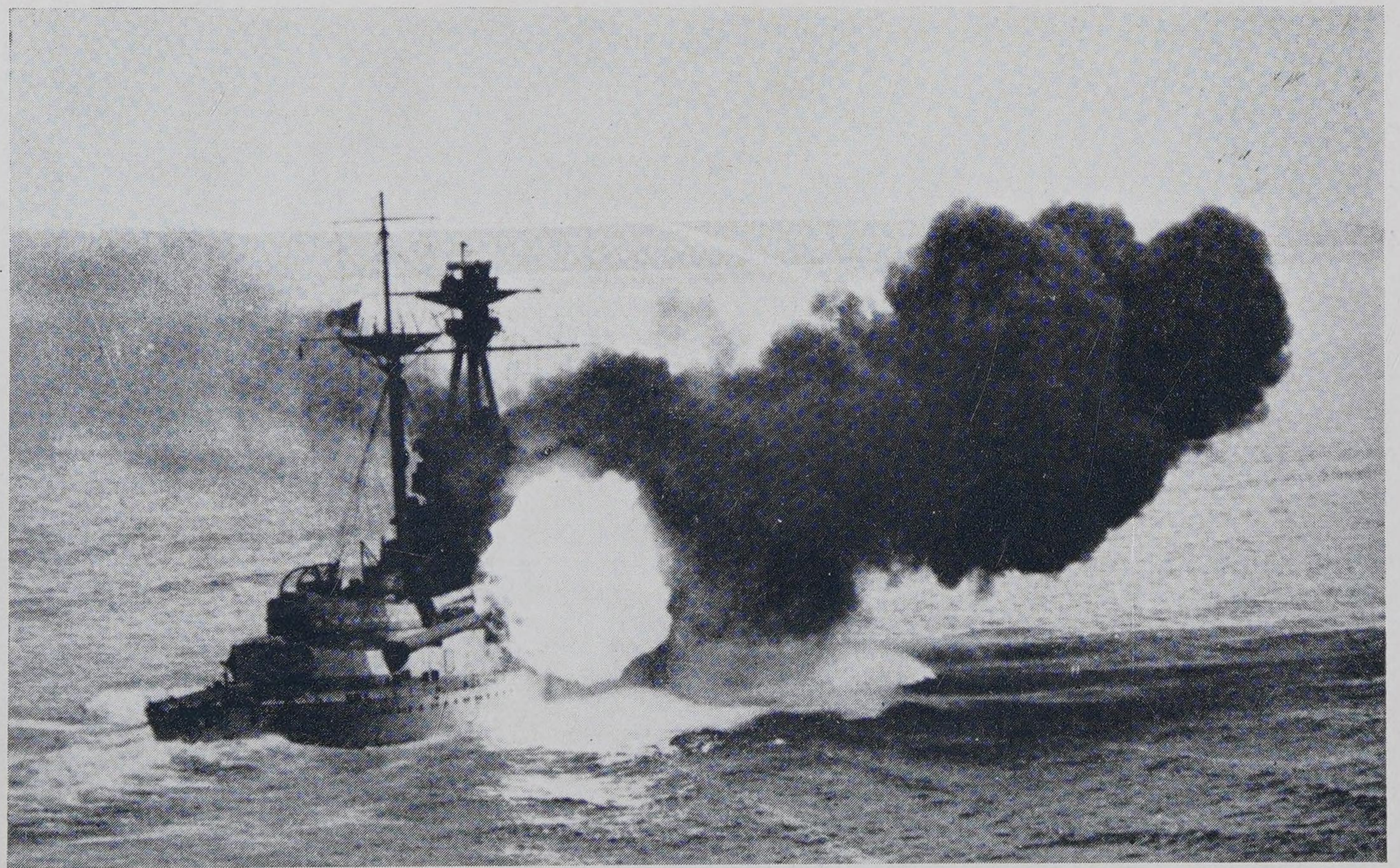
The completion of H.M.S. *Dreadnought* with ten 12 in. guns in 1906 rendered all previous battleships ineffective just as our first three Battle Cruisers of 1908 rendered all earlier heavy cruisers obsolete. All the major Naval powers had to scrap their building programmes and re-plan for bigger ships with enlarged dock facilities. For Germany it also meant enlarging the Kiel Canal. On the other hand it enabled all Powers to start level again, thus cancelling out our naval preponderance built up in the previous era. Naval power was now reckoned in units of Dreadnought battleships and battle cruisers. (Henceforward the term "battleships" in this book will refer to Dreadnoughts only; "pre-Dreadnoughts" being used for earlier ships.)

As long ago as 1909 it was estimated that Germany would reach the most favourable ratio of strength in the autumn of 1914 (Britain: 22 battleships plus 10 battle cruisers, Germany: 16 battleships plus 6 battle cruisers). As the German ships were organised in fleets of 16 battleships this would also complete a post-Dreadnought "fleet". Furthermore the enlargement of the Kiel Canal was due for completion at the same time and therefore from the Naval angle this was the most probable date for the outbreak of war. Later on the enemy anticipated further advantage from the addition of two battleships building in Britain for Turkey, which would draw off at least two of our ships to the Mediterranean to hold them. However, delivery was purposely delayed and the ships were taken over by us as H.M.S. *Agincourt* and H.M.S. *Erin*.

Concentrations of our immense fleet in pre-war years were sights which those who were fortunate enough to see them are never likely to forget. In 1911 for the Coronation Review of H.M. King George V the greatest assembly of warships ever seen took place and seemed to fill Spithead from the forts to the mouth of Southampton Water. In 1914 the fleet again mustered in full strength steaming up Channel in two parallel lines. With a light following air the smoke rose vertically from an apparently endless procession of majestic ships.

In 1912 "super-Dreadnoughts" with 13.5 in. guns joined the fleet and their austere outlines showed little beyond big guns, tripod masts and engine power symbolised in the great flat-sided funnels. Wartime additions in the way of director platforms, searchlight towers, etc., produced a slightly more subtle outline but the impression of great dignity and power has hardly been surpassed. At first gun trials took place in the Channel and the writer remembers considerable vibration at a distance of 60 miles. Near the coast many windows were battered and thereafter the big ships did their trials out in the Atlantic.

Few of the works of man have presented such a magnificent spectacle as a battleship or battle cruiser at full power. Steaming at 25 to 35 knots, with bow and stern waves piled high, the smoke pouring from her funnels was visibly lifted by the forced draught. When firing, the ship was momentarily blotted out by globes of dazzling orange flame, followed by the tremendous concussion of her guns whose blast caused ripples and a flurry of spray on the water. A



H.M.S. *Resolution* opens fire. [I.W.M.

moment later the thin brownish cloud of burnt out cordite was drifting away astern. When firing broadsides the combined flash was sometimes so great as to give the impression that the ship had blown up.

Until shortly before the War it was believed that a close blockade of Germany would be attempted. This would have provided opportunities for the piecemeal reduction of our fleet by losses from mine and torpedo attacks. Such losses and damage together with the periodic return of ships to base might have enabled the enemy to strike at a moment of parity or even temporary superiority. This possibility was foiled by the adoption of the Northern blockade based on Scapa. German offensive action took the form of laying minefields off our coasts immediately war was declared and this was successful in causing the loss of H.M.S. *Audacious*.

The Grand Fleet under Sir John Jellicoe was based on Scapa Flow and the Battle Cruiser Force under Sir David Beatty operated from Rosyth. Periodic sweeps were carried out over the North Sea.

Principal events involving battleships and battle cruisers may be summarised as follows:—

August 1914. Heligoland Bight. Successful battle cruiser support of light forces based on Harwich resulted in the sinking of three German light cruisers.

December 1914. Falklands. In November the armoured cruisers *Good Hope* and *Monmouth* had been sunk at Coronel by the German ships *Scharnhorst* and *Gneisenau* of the same category but later design. The battle cruisers *Invincible* and *Inflexible* were secretly despatched and overwhelmed the German ships off the Falkland Is.

December 1914. Bombardment of Hartlepool, Whitby and Scarborough by four German battle cruisers which escaped in squalls and mist.

January 1915. Dogger Bank. Our battle cruisers intercepted three German battle cruisers and the heavy armoured cruiser *Bluecher*. The enemy made off at high speed and in the ensuing running fight the *Bluecher* was sunk and the *Seydlitz* badly damaged as was Beatty's flagship *Lion*.

Feb.-March 1915. Dardanelles In addition to pre-Dreadnoughts the new *Queen Elizabeth* with 15 in. guns, and the battle cruisers *Indefatigable* and *Inflexible*, joined in the bombardments.

April 1916. Lowestoft and Great Yarmouth were subjected to 20 minutes bombardment by the German battle cruisers.

May 31st to June 1st, 1916. Jutland. The German battle cruiser force was sighted by our battle cruisers at 2.30 p.m. and at 3.48 p.m. fire was opened on a south-easterly course, the German intention being to draw our ships on to their High Seas Fleet. At 4.10 p.m. the 5th Battle Squadron joined our battle cruisers. This comprised four ships of the "Queen Elizabeth" class (the *Queen Elizabeth* being under refit at Portsmouth). At 4.40 p.m. the German High Seas Fleet was sighted and our ships turned to the opposite course (north westerly) to lead the combined German forces on to the Grand Fleet. This was accomplished by 6.17 p.m. when the Grand Fleet opened fire; the course was now easterly heading the enemy off. Mist and smoke caused frequent cessation of fire, touch was finally lost about 8.30 p.m. and half an hour later it was too dark. The fleet was by now moving south to cut the enemy off from his bases. Confused actions between smaller ships continued during the night during which the enemy escaped behind our main force. At 2.47 a.m. on June 1st our fleet turned north as the risk of entering enemy minefields became serious. Thus ended the first and only great naval gun battle between ships of the Dreadnought era, in which the lateness of the hour and poor visibility prevented the complete destruction of the enemy.

Although our ship losses were the greater (three battle cruisers, three armoured cruisers and eight destroyers against one battle cruiser, one pre-Dreadnought, four light cruisers and eight destroyers) damage throughout the German fleet was widespread, whereas on our side it was more or less confined to the Battle Cruiser Force which had borne most of the fighting. The only ship of the Battle Fleet to be seriously damaged was the *Marlborough* which was torpedoed but returned to base under her own steam. The bulk of our fleet, which was not heavily damaged, returned to base, refuelled and reported ready for sea by 9.45 p.m. on June 2nd. Victory for both sides has been claimed on various grounds, but the fact remains that the High Seas Fleet never again put to sea with the serious intention of engaging the Grand Fleet. With the exception of the *Bayern* and *Baden* which were completing, work on large ships ceased and activities were concentrated on U-boats.

August 1916. German fleet (excluding ships still under repair) left port but returned as soon as it was known that the Grand Fleet was out in force. It did not venture out again until the surrender.

December 1917. Grand Fleet reinforced by powerful American force of nine battleships:—U.S.S. *New York* (flagship), *Texas*, *Oklahoma*, *Nevada*, *Arizona*, *Arkansas*, *Wyoming*, *Florida* and *Utah* which became the 6th Battle Squadron. (They departed in December 1918.) This gave us overwhelming superiority.

November 1918. German fleet surrenders and is interned at Scapa Flow.

June 1919. German ships scuttled by their crews at Scapa.

The conduct of operations on both sides has been criticised as unduly cautious, but it must be remembered that the British Commander-in-Chief was the *only* person on either side who could lose the War in two hours. The sinking of H.M.S. *Audacious* and heavy losses at the Dardanelles showed that the danger from mines was very serious and that the sudden employment of a new type laid by submarines could be disastrous (magnetic mines *were* under development during World War I.)

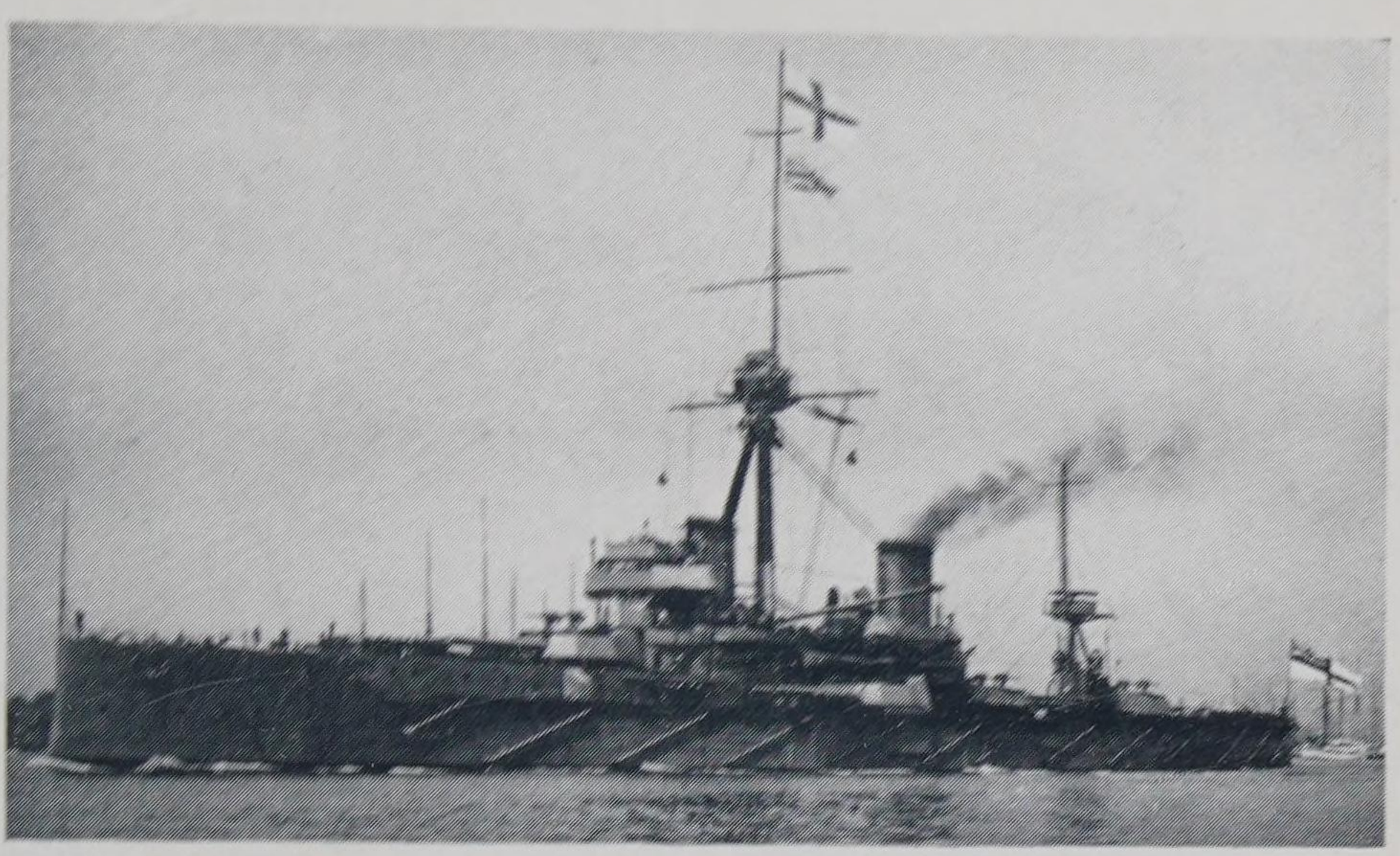
On the German side the preservation of the High Seas Fleet was essential to maintain a weapon which might in certain circumstances (such as widespread damage to our fleet by U-boats) prove decisive.

Returning now to 1905 the development of the capital ships which took part in the events just described will be traced.

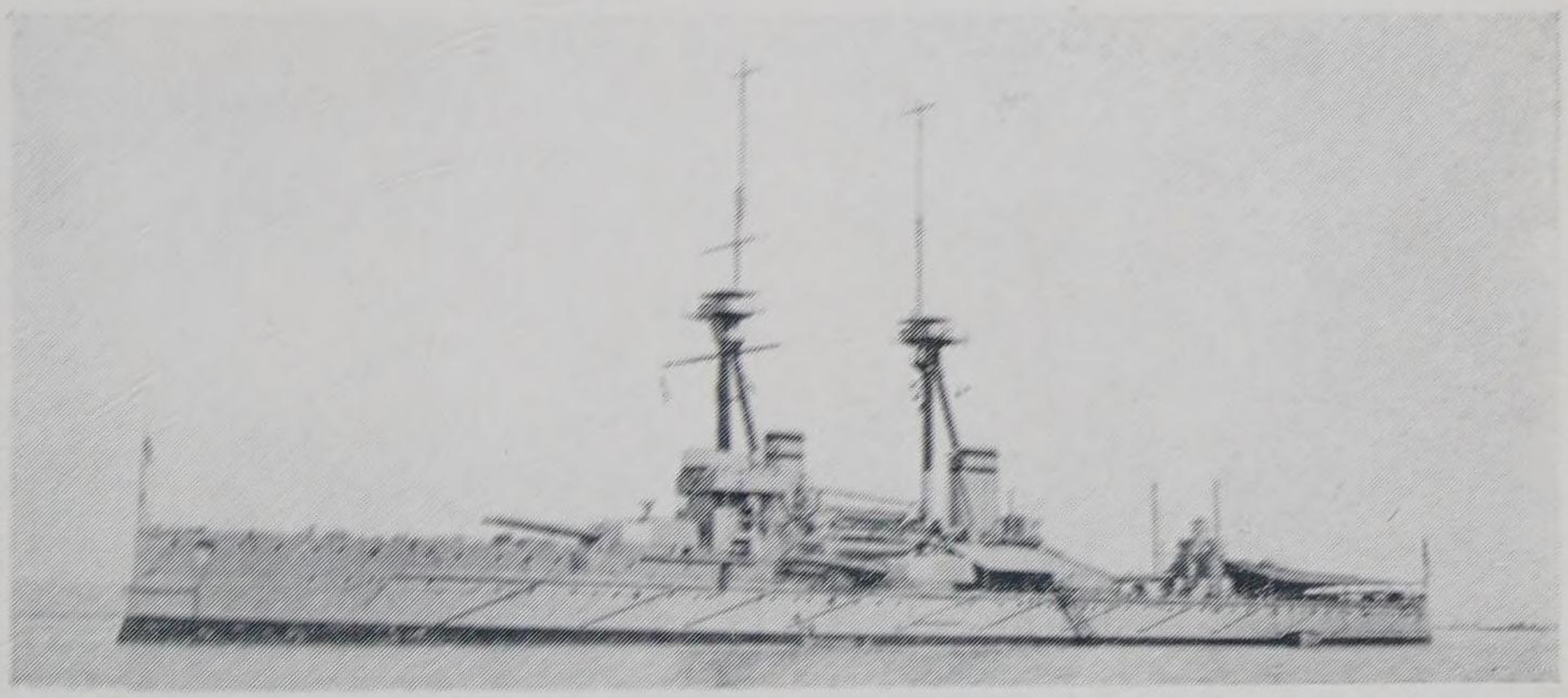
British Battleships (Dreadnoughts) with 12in. Guns.

Increasing intermediate armament on pre-Dreadnoughts was a pointer to the next stage—a greatly increased primary armament without the intermediate. This meant raising the main mountings from two turrets to four or more and such plans had already been projected in the U.S.A. and Italy. Nor was there anything new in the basic idea since the *Royal Sovereign* of 1864 had four turrets.

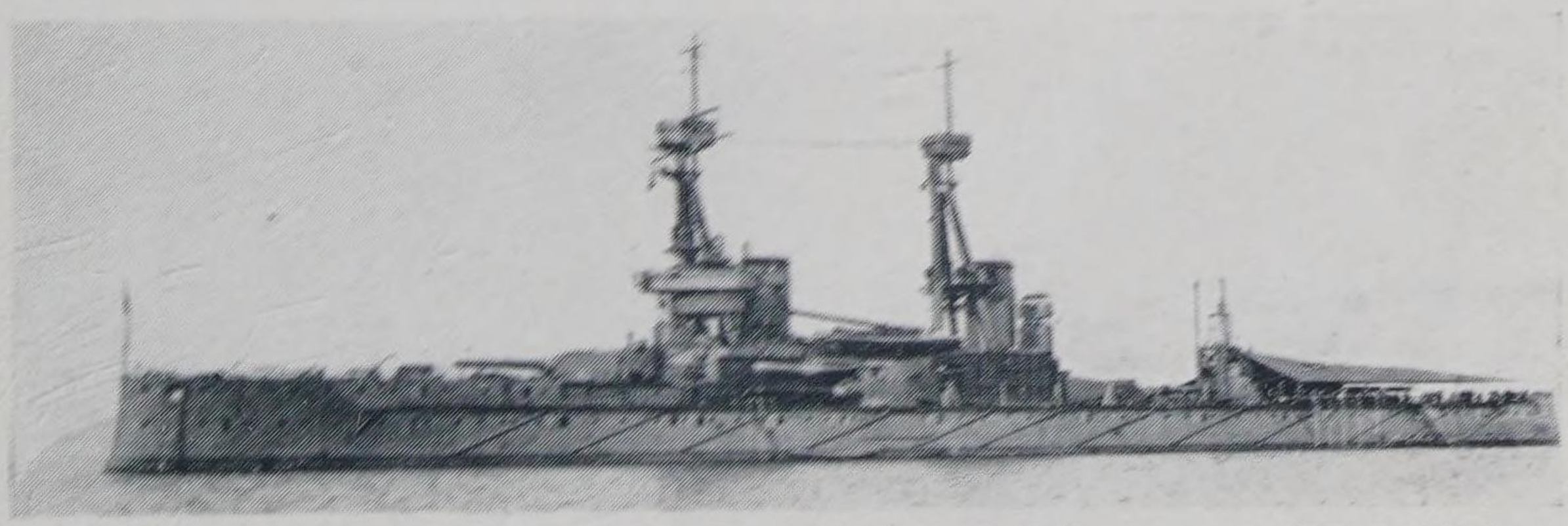
What *was* remarkable was the speed with which the *Dreadnought* was built at Portsmouth Dockyard. Laid down in October 1905, she was launched the following February and ready for trials in exactly one year. The primary armament was arranged in five twin 12 in. turrets, three on the centre line and two amidships on either beam giving a broadside of eight big guns. The U.S.S. *South Caroline* and *Michigan* designed *before* the Dreadnought but not completed until 1909, also had eight gun broadsides but only four turrets. On the centre line and superimposed fore and aft this arrangement made more efficient use of



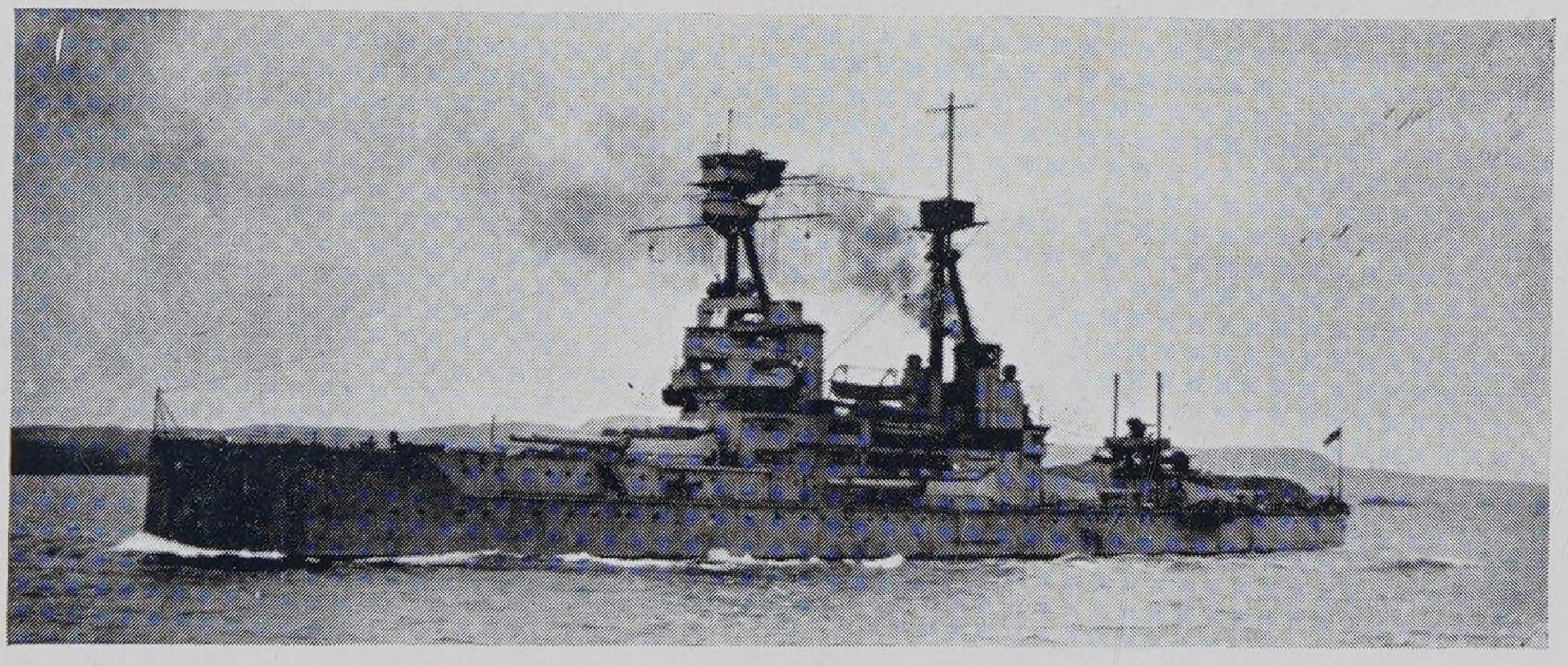
H.M.S. Dreadnought.



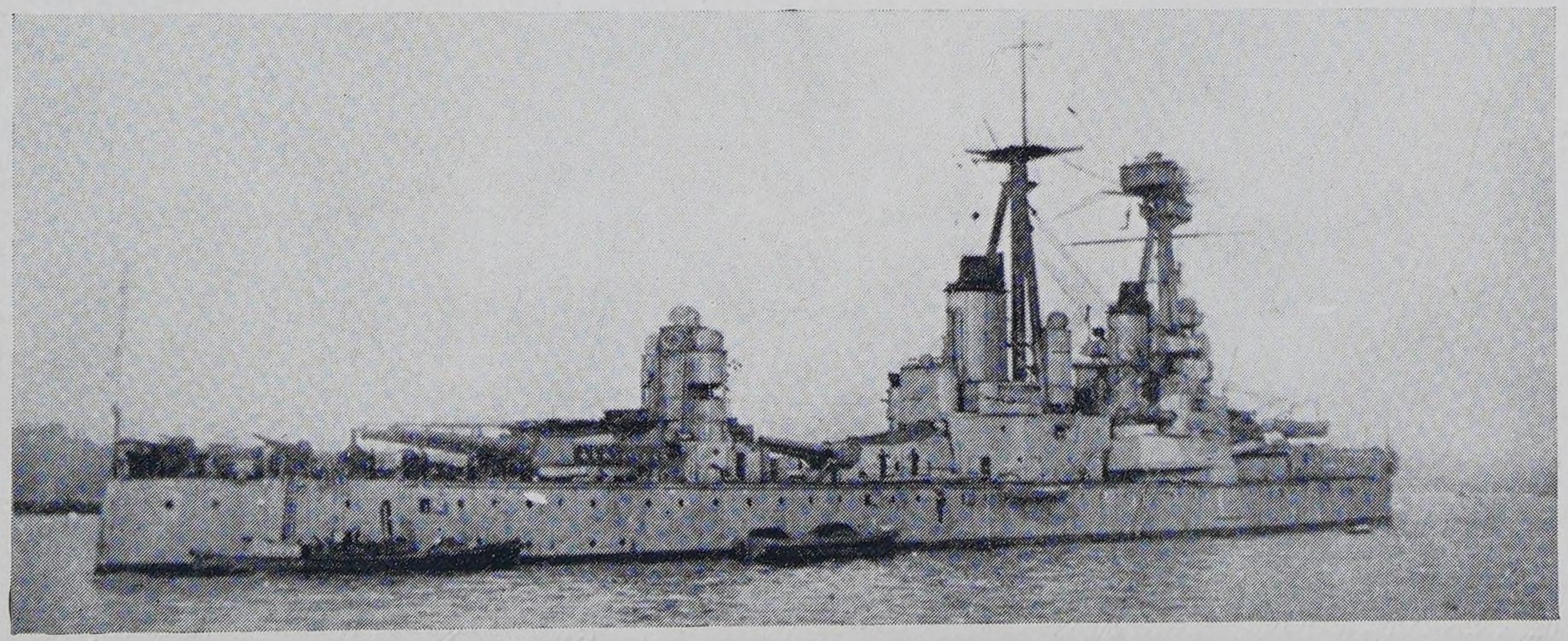
H.M.S. Vanguard in 1912. [Seward



H.M.S. Bellerophon in 1914. Note short top-masts and re-grouped searchlights.



H.M.S. *Superb* in 1918. In that year she led the allied fleet through the Dardanelles. [*H.S. & R.*



H.M.S. *Collingwood* in 1918. [*I.W M.*

the guns and anticipated the plan later adopted universally. At this date it makes the British and German reluctance to abandon wing turrets difficult to understand.

However H.M.S. *Dreadnought* was not only notable for increased size and gun power. She was the first large warship to be driven by steam turbines and four screws which brought the speed up to 21 knots. Quadruple screw turbines remained the standard machinery for large British warships thereafter. The single tripod mast was a new and striking feature. Increased gun ranges (invisible at turret level) and improved range finding and fire control apparatus necessitated a vibration-free platform aloft—hence the tripod.

H.M.S. DREADNOUGHT.

Length: 526 ft. *Beam:* 82 ft. *Displacement:* 17,900-20,700 tons.
Turbines: 4 screws. 23,000 h.p. 21-22 knots.
Guns: 10—12 in. 24—12 pdr.* *Torpedo tubes:* 5 (later 4)—18 in.
Armour: Belt 11 in., turrets 8 in. *Complement:* 862.
*Later altered to 10—12 pdr., 2—3 in. A.A., 2—12 pdr. A.A.

Name	*Completed*	*Builder*	*Engines*	
Dreadnought	10/1906	P.Dy.	V.	9th of name (1st 1573).

1914, Flagship 4th B.S. 1915, Sank U29 (whose Captain had sunk the old cruisers *Aboukir*, *Cressy* and *Hogue*). 1916, Refit and Flagship 3rd B.S. ("King Edwards"). 1919, Reserve. 1920-22, Sale and scrapped.

The "Bellerophon" class which followed had two tripod masts and the secondary armament was increased to 4 in. guns.

BELLEROPHON CLASS.

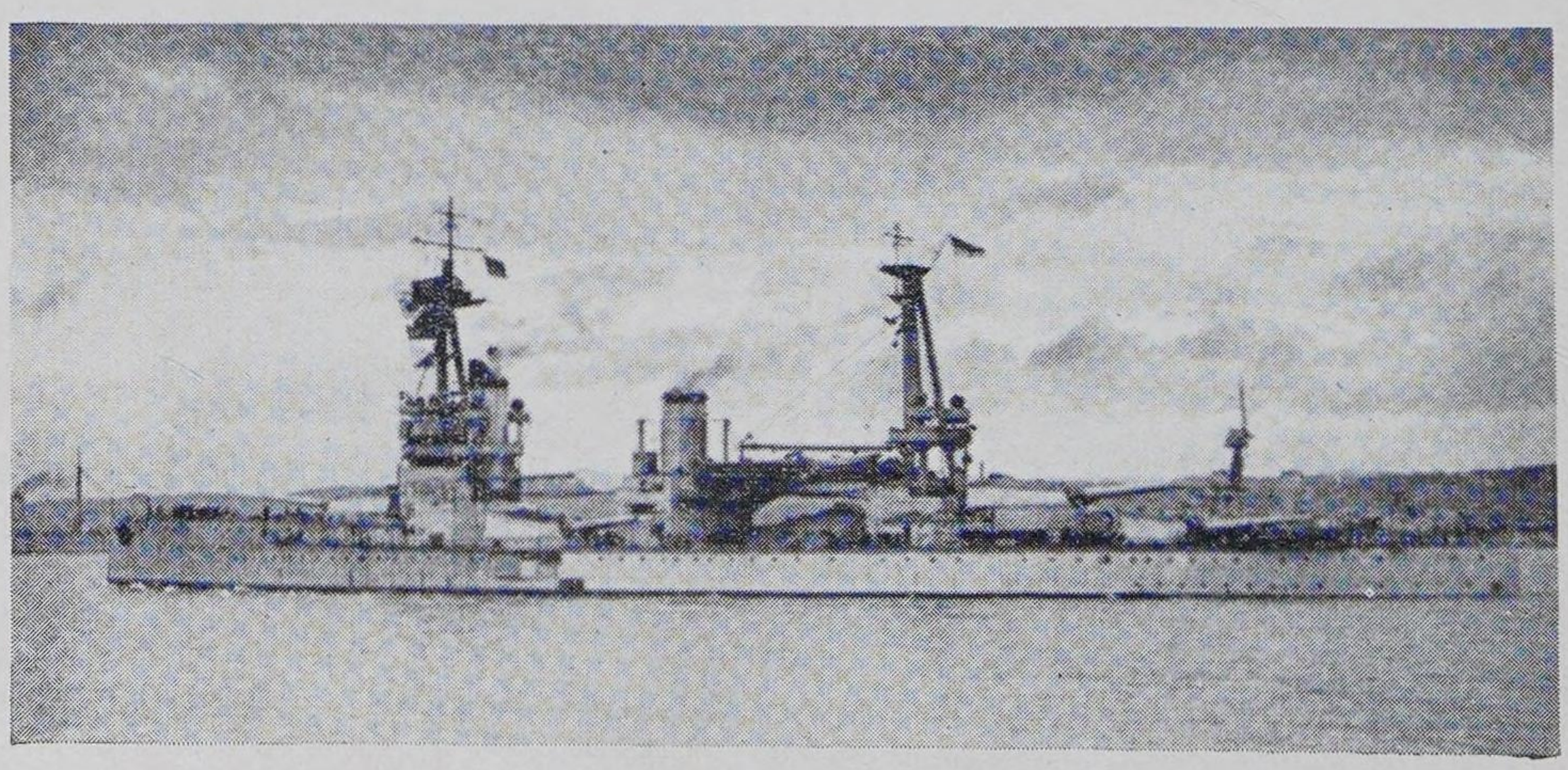
Length: 526 ft. *Beam:* 82 ft. *Displacement:* 18,600-22,000 tons.
Turbines: 4 screws. 23,000 h.p. 21-22 knots.
Guns: 10—12 in. 16—4 in.* *Torpedo tubes:* 3 (later 2)—18 in.
Armour: Belt 11 in., turrets 8 in. *Complement:* 750-850.
*Later altered to 10 to 11—4 in. 2—4 in. or 3 in. A.A.

Name	*Completed*	*Builder*	*Engines*	
Bellerophon	2/1909	P.Dy.	F.	4th of name (1st 1756).
Temeraire	5/1909	D.Dy.	HL.	5th of name (1st 1694).
Superb	5/1909	AW.	Wall.	9th of name (1st 1710).

Bellerophon: 1914, 4th B.S. 1916, Jutland. 1919, Turret drill ship. Sale and scrapped 1920-21.
Temeraire: 1914, 4th B.S. 1916, Jutland. 1918, Mediterranean. 1919, Cadets training ship. Sale and scrapped 1921-22.
Superb: 1914, 1st B.S. 1916, Jutland. 1918, Led Allied fleet through Dardanelles. 1919, Turret drill ship: Target. Sale and scrapped 1920-22.

H.M.S. *Neptune* as built in 1911.
[*Cozens*

H.M.S. *Neptune* in 1918. Note the many wartime changes. [*I.W.M.*



The " St. Vincent " class were very similar but had longer (50 cal.) 12 in. guns and could be distinguished by their small fore funnels.

ST. VINCENT CLASS

Length: 536 ft. *Beam:* 84 ft. *Displacement:* 19,250-22,900 tons.
Turbines: 4 screws. 24,500 h.p. 21-22 knots.
Guns: 10—12 in. 18—4 in.* *Torpedo tubes:* 3 (later 2)—18 in.
Armour: Belt 10 in., turrets 11 in. *Complement:* 800-850.
*Later altered to 12—4 in., 2—3 in. A.A.

Name	*Completed*	*Builder*	*Engines*	
St. Vincent	5/1910	P.Dy.	Sc.	3rd of name (1st 1692).
Collingwood	4/1910	D.Dy.	HL.	4th of name (1st 1841).
Vanguard	2/1910	V.	V.	7th of name (1st 1586).

St. Vincent: 1914, 1st B.S. 1916, Jutland. 1917, 4th B.S. 1919, Turret drill ship. Sale and scrapped, 1919-22.
Collingwood: 1914, 1st B.S. 1916, Jutland. 1917, 4th B.S. 1919, Turret drill ship. Sale and scrapped 1920-22.
Vanguard: 1914, 1st B.S. 1916, 4th B.S. Jutland. 1917, Destroyed by internal explosion.

The next ship, H.M.S. *Neptune* had the wing turrets in echelon and a flying deck with limited possibility of firing 10 gun broadsides. The after turrets were superimposed for the first time in the Royal Navy. During the war the forward part of the flying deck was removed.

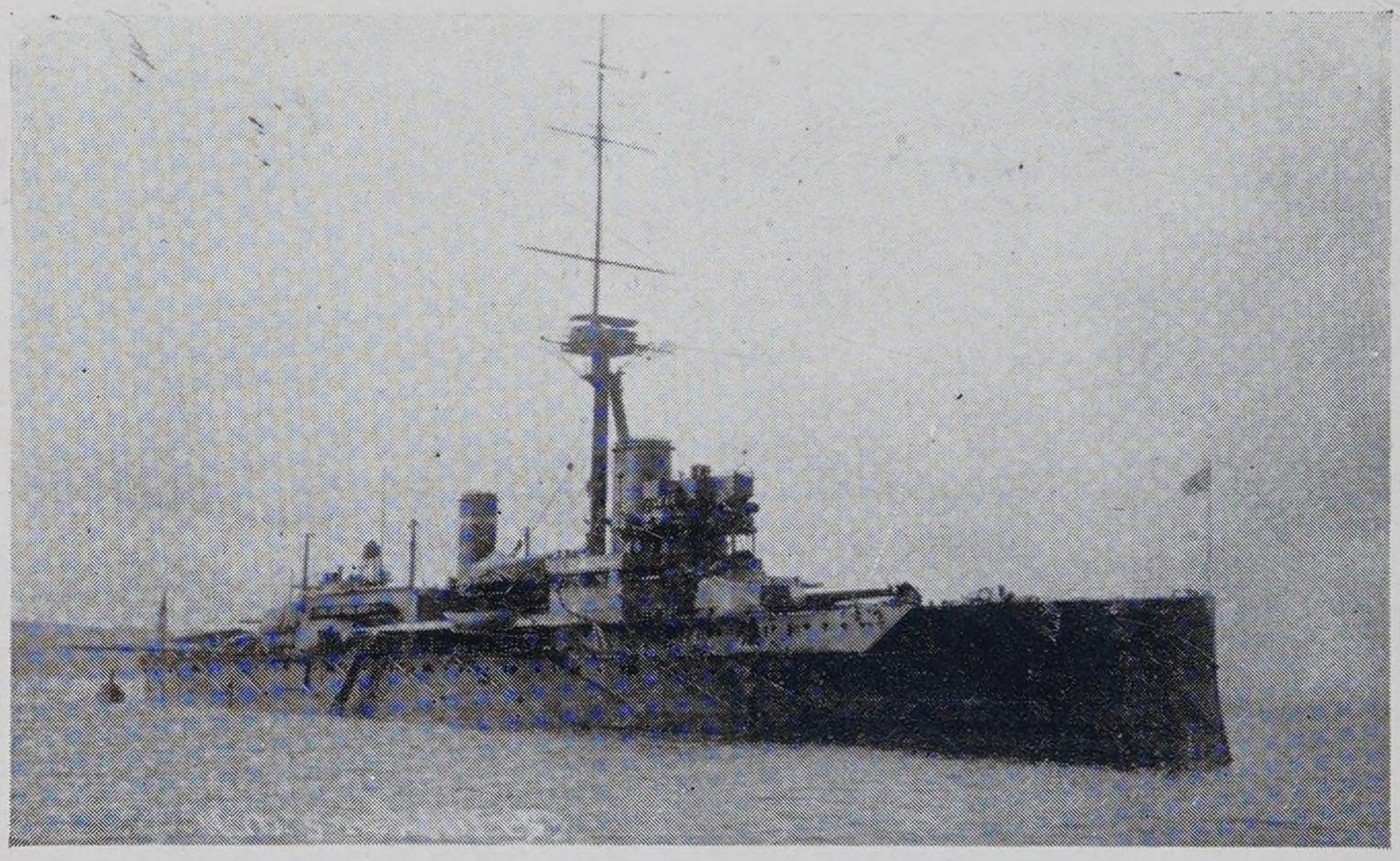
H.M.S. NEPTUNE

Length: 546 ft. *Beam:* 85 ft. *Displacement:* 19,900-22,000 tons.
Turbines: 4 screws. 25,000 h.p. 21-22 knots.
Guns: 10—12 in. 16—4 in.* *Torpedo tubes:* 3 (later 2)—21 in.
Armour: Belt 10 in., turrets 11 in. *Complement:* 813-900.
*Later altered to 12—4 in., 2—3 in. A.A.

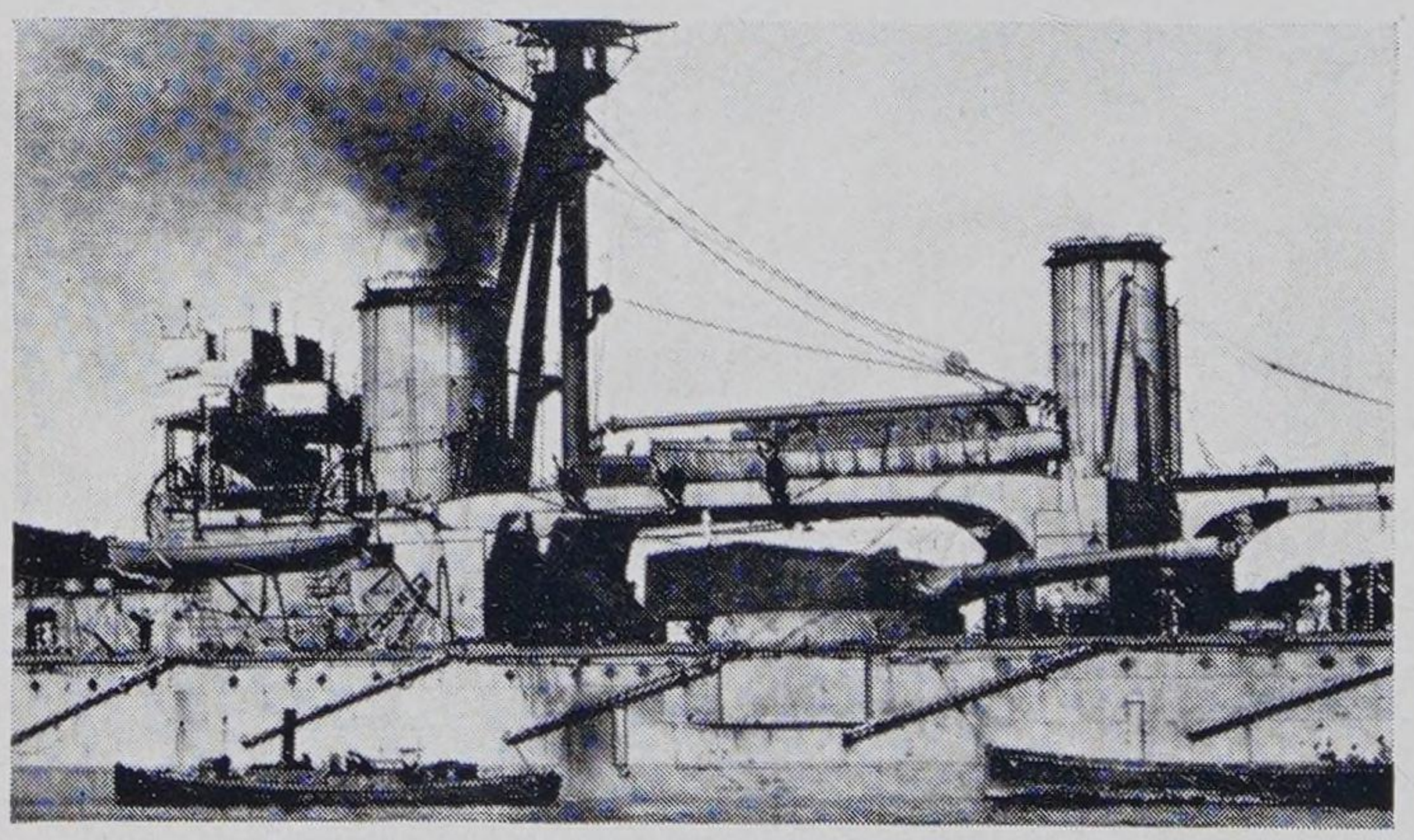
Name	*Completed*	*Builder*	*Engines*	
Neptune	1/1911	P.Dy.	C.	15th of name (1st 1683).

1914, 1st B.S. 1916, Jutland. 1917, 4th B.S. 1919, Reserve. Sale and scrapped 1921-22.

The " Colossus " class could be distinguished by their single tripod mast against the *Neptune's* two. During the War the after part of the flying deck was removed.



Above: H.M.S. *Hercules.* [*Seward*



Left: H.M.S. *Colossus* showing detail. [*R. Perkins*

Below: H.M.S. *Colossus* as in 1918. [*Seward*

COLOSSUS CLASS.

Length: 546 ft. *Beam:* 86 ft. *Displacement:* 20,000-22,250 tons.
Turbines: 4 screws. 25,000 h.p. 21-22 knots.
Guns: 10—12 in. 16—4 in.* *Torpedo tubes:* 3 (later 2)—21 in.
Armour: Belt 11 in., turrets 11 in. *Complement:* 831-900.
*Later altered to 12—4 in., 1—4 in. or 3 in. A.A.

Name	*Completed*	*Builder*	*Engines*	
Colossus	7/1911	Sc.	Sc.	5th of name (1st 1787).
Hercules	8/1911	Pal.	Pal.	6th of name (1st 1759).

Colossus: 1914, 1st B.S. 1916, Jutland. 1917, 4th B.S. 1919, Training ship partly painted in Victorian livery 1920-21. Sale and scrapped 1928.

Hercules: 1914, 1st B.S. 1916, Jutland. 1917, 4th B.S. 1919, Allied Naval Commission to Kiel. Sale and scrapped 1920-22.

The *Agincourt* was ordered as the *Rio de Janiero* for Brazil with 12—14 in. guns. The design was altered to 14—12 in. to simplify ammunition supply as Brazil already had ships with 12 in. guns. She was transferred to Turkey as the *Sultan Osman I* and taken over by Britain at the outbreak of war. The flying deck was removed and at a later stage the main mast. She was the only big ship to have fourteen big guns and seven turrets (denoted A, B, P, Q, X, Y, Z).

H.M.S. AGINCOURT.

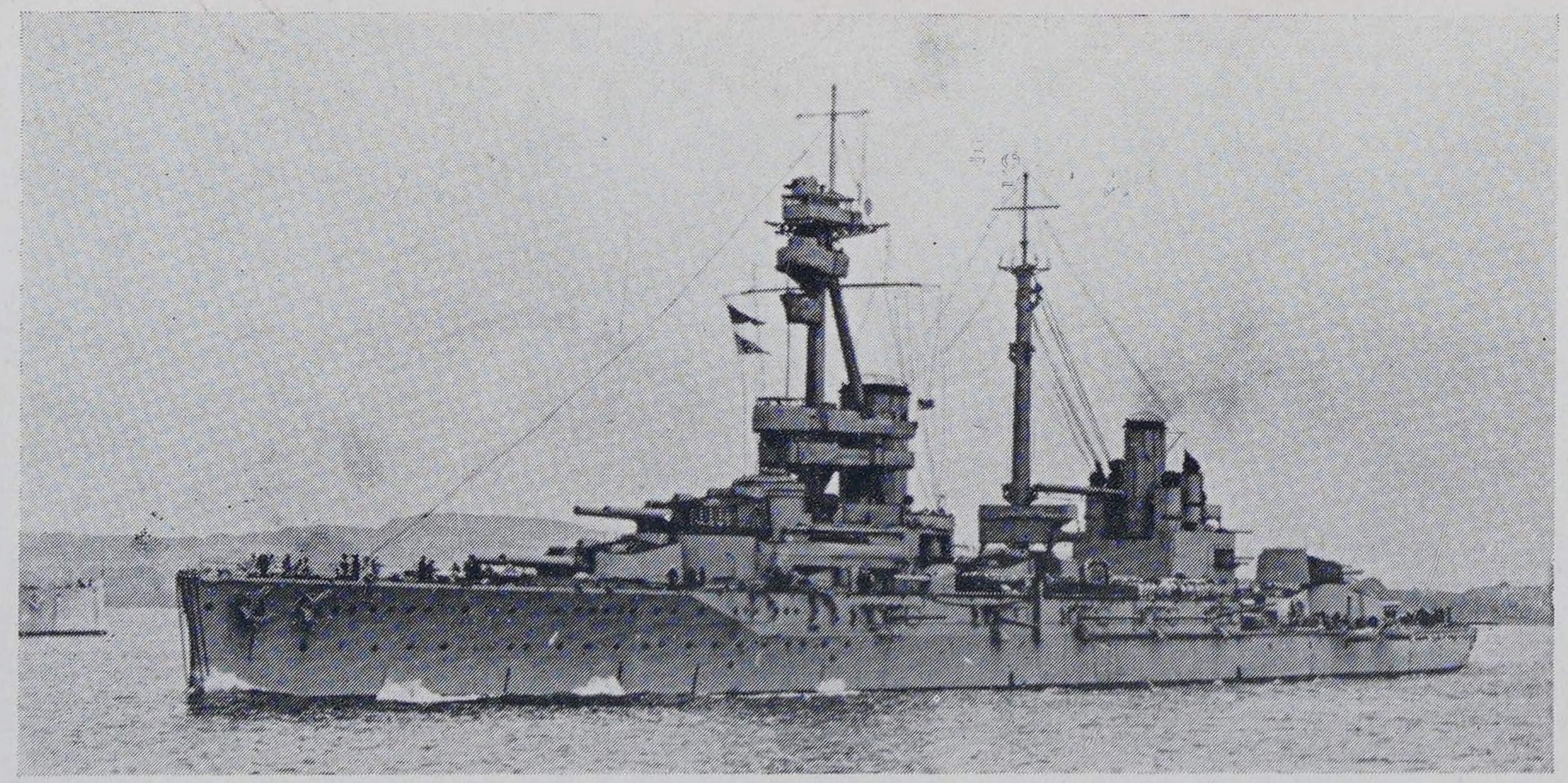
Length: 671½ ft. *Beam:* 89 ft. *Displacement:* 30,250 tons.
Turbines: 4 screws. 34,000 h.p. 22 knots.
Guns: 14—12 in. 20—6 in. 8—3 in. 2—3 in. A.A. *Torpedo tubes:* 2—21 in.
Armour: Belt 9 in., turrets 12 in. *Complement:* 1,267.

Name	*Completed*	*Builder*	*Engines*	
Agincourt	8/1914	AW.	V.	4th of name (1st 1796).

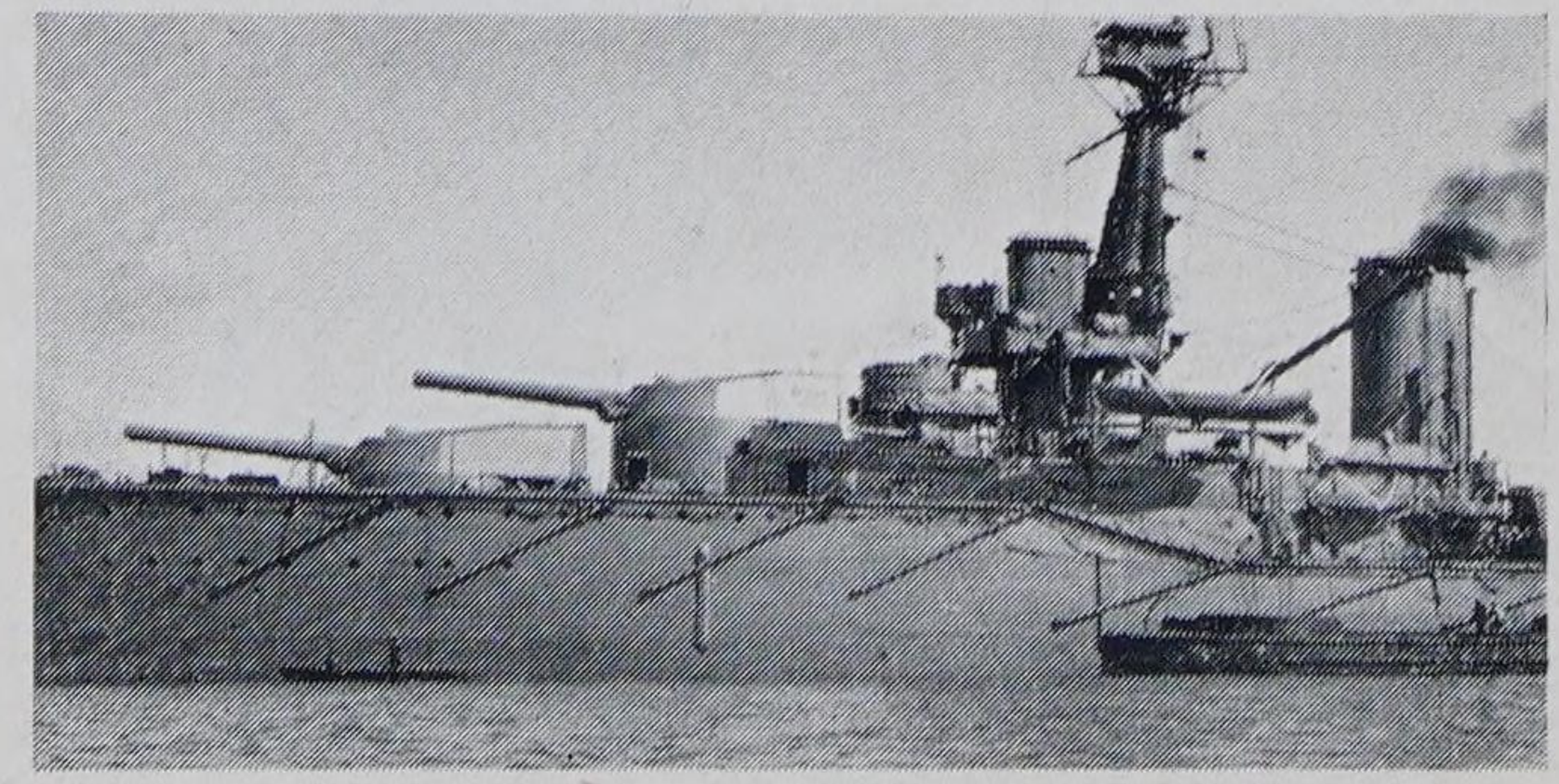
1914, 4th B.S. 1916, 1st B.S., Jutland. 1917, 2nd B.S. 1919, Discarded. 1921 Used for experiments. Sale and scrapped 1921.

BRITISH BATTLESHIPS with 13.5 in. GUNS.

These fourteen ships were all to the same general plan with five turrets on the centre line superimposed fore and aft. On account of this and the guns being larger than 12 in. they were popularly termed " super-Dreadnoughts ". Their maximum draught was 31-33 ft., as against 29-31 ft. on the 12 in. ships. The fuel carried by both groups was about 75% coal and 25% oil.



Above: H.M.S. *Agincourt* in 1918, after removal of tripod mainmast. She was originally ordered as the *Rio de Janiero* for Brazil, transferred to Turkey as the *Sultan Osman I*, and taken over by Britain on the outbreak of war. She was the only capital ship to have 14 big guns and 7 turrets.



An impression of power—the forward part of H.M.S. *Monarch*, showing the twin turrets which housed four of the ten 13.5 in. guns. [*R. Perkins*

The four ships of the Orion class on a North Sea Sweep. In the distance is the 6th Battle Squadron (U.S.A.). [*I.W.M*

ORION CLASS.

Length: 584 ft. *Beam:* 85 ft. *Displacement:* 22,500-25,000 tons.
Turbines: 4 screws. 27,000-33,000 h.p. 21-22 knots.
Guns: 10—13.5 in. 16—4 in.* *Torpedo tubes* : 3 (later 2)—21 in.
Armour: Belt 12 in., turrets 11 in. *Complement:* 800-900.
*Later 1—4 in. A.A., 1—3 in. A.A. added.

Name	Completed	Builder	Engines	
Orion	1/1912	P.Dy.	Wall.	4th of name (1st 1787).
Monarch	3/1912	AW.	HL.	5th of name (1st 1747).
Thunderer	6/1912	T.I.W.	T.I.W.	5th of name (1st 1760).
Conqueror	11/1912	WB.	WB.	8th of name (1st 1756).

Orion: 1914, 2nd B.S. 1916, Jutland. Sale and scrapped 1922-23.
Monarch: 1914, 2nd B.S. 1916, Jutland. 1925, Sunk as target.
Thunderer: The last big warship to be built on the Thames, where high rates forced shipbuilders to close down or move elsewhere. 1914, 2nd B.S. 1916, Jutland. 1920, Cadets training ship. Sale and scrapped 1926.
Conqueror: 1914, 2nd B.S. 1916, Jutland. Sale and scrapped 1922.

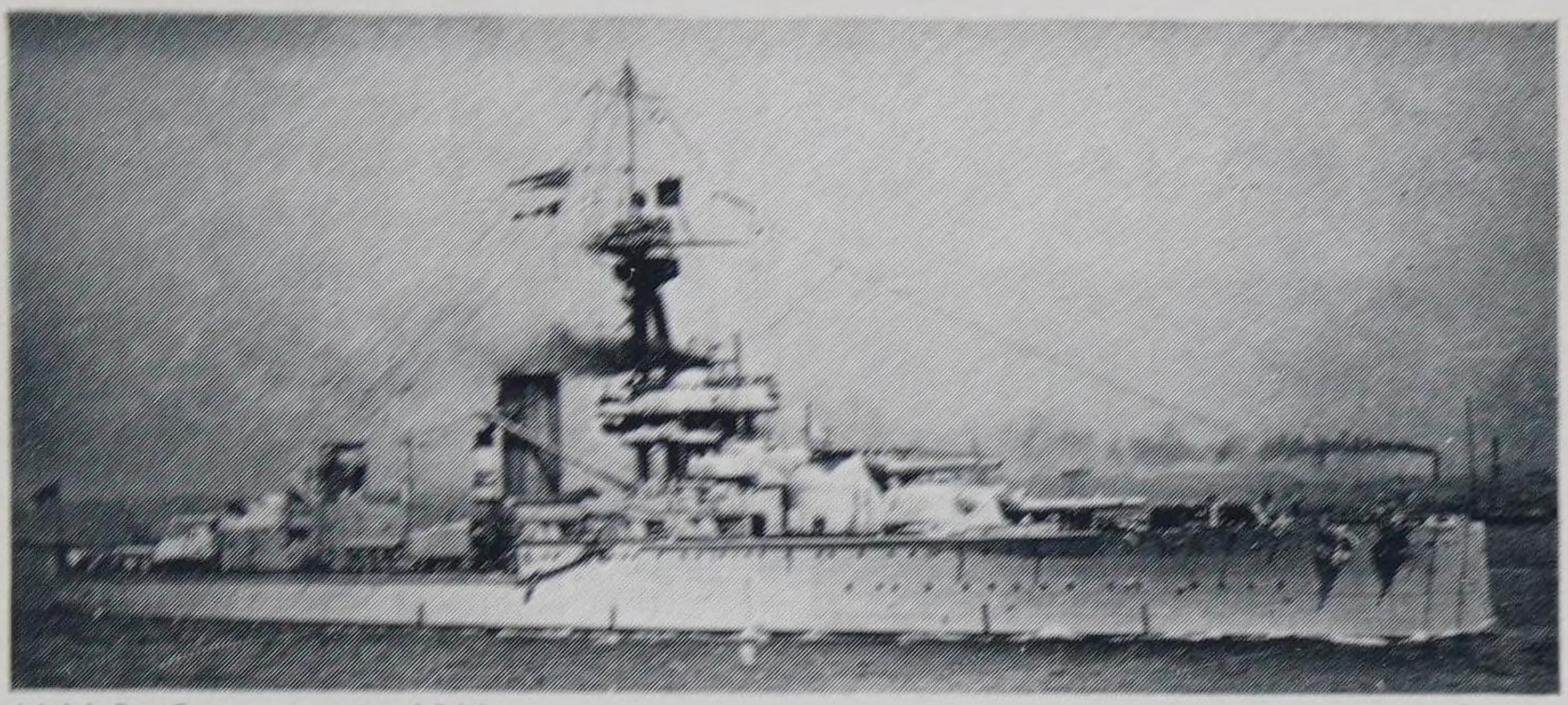
The next, " King George V ", class did not at first have tripod masts and various stiffening flanges were tried. They did not however effect the required stiffness and tripods were later fitted. H.M.S. *Centurion* was the first ship to have director-controlled secondary battery and searchlights. War experience was to prove this equipment essential. The 13.5 in. guns used 1,400 lb. shell against 1,250 lb. on the " Orions."

KING GEORGE V CLASS.

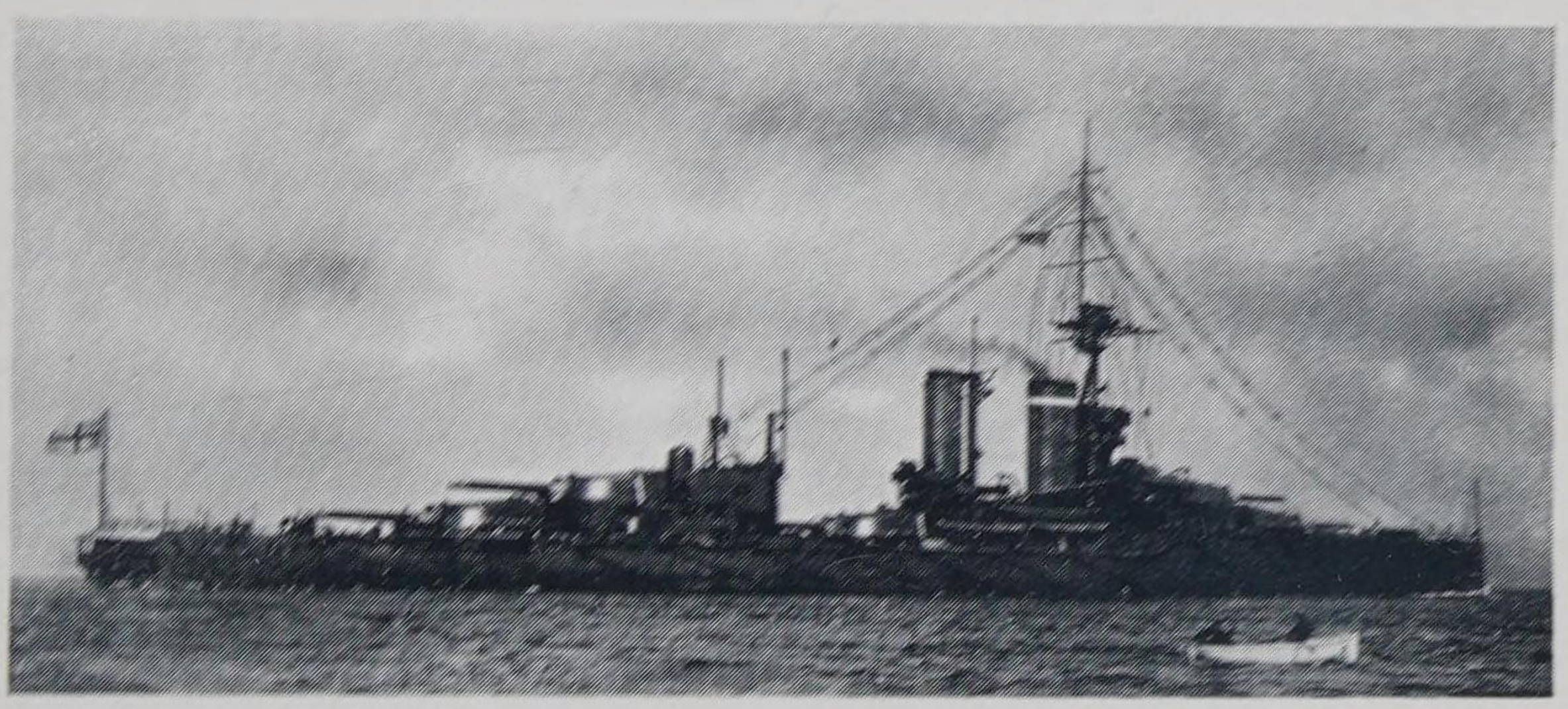
Length: 598 ft. *Beam:* 89 ft. *Displacement:* 23,000-25,500 tons.
Turbines: 4 screws. 31,000 h.p. 21-22 knots.
Guns: 10—13.5 in. 16—4 in.* *Torpedo tubes:* 3 (later 2)—21 in.
Armour: Belt 12 in., turrets 11 in. *Complement:* 812-900.
*Later 2—4 in. or 3 in. A.A. added.

Name	Completed	Builder	Engines	
King George V	11/1912	P.Dy.	HL.	1st of name
Centurion	5/1913	D.Dy.	HL.	11th of name (1st 1650).
Ajax	10/1913	Sc.	Sc.	6th of name (1st 1767).
Audacious	10/1913	CL.	CL.	3rd of name (1st 1785).

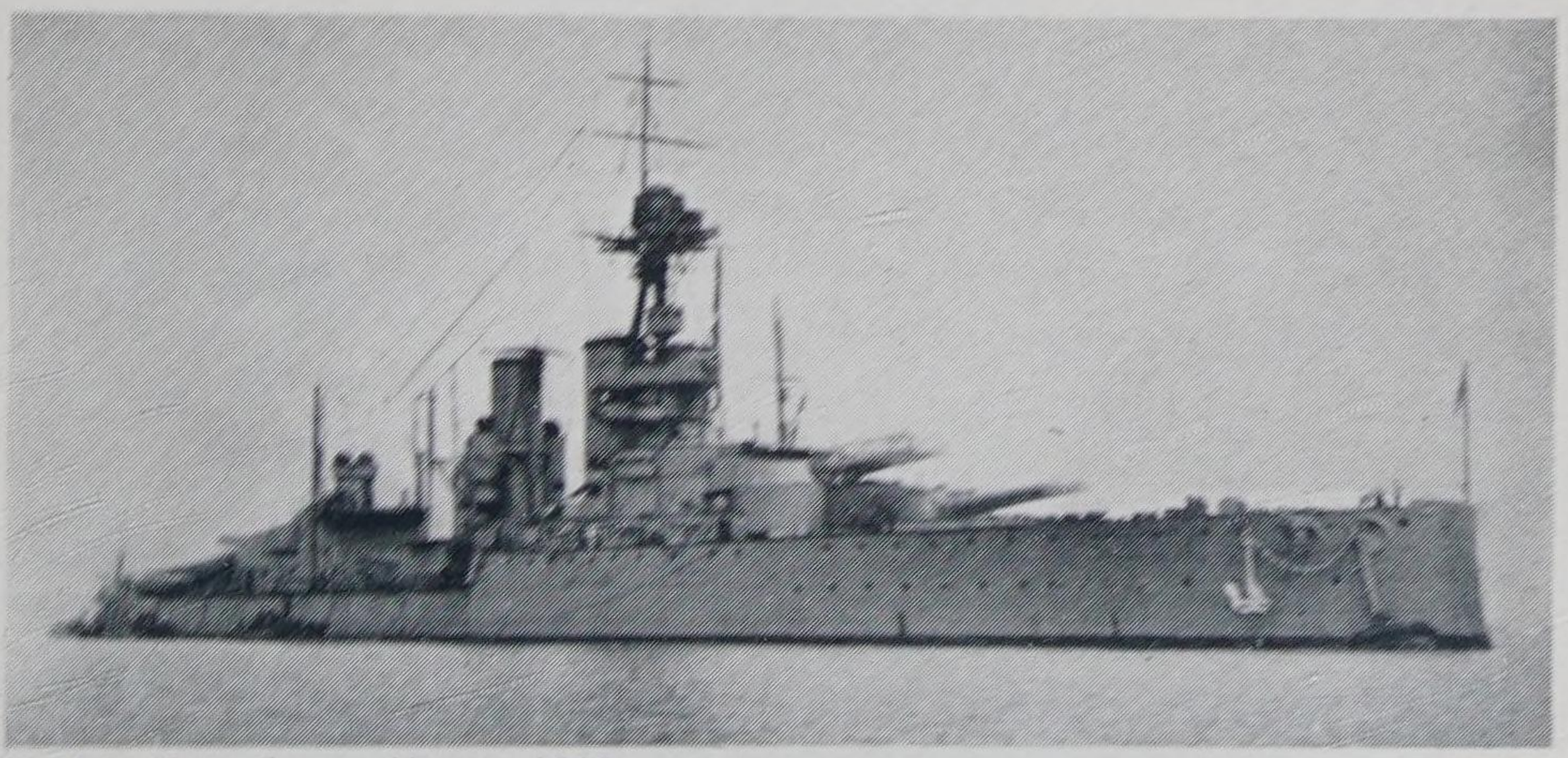
King George V: 1914, 2nd B.S. 1916, Jutland. 1919, Mediterranean. 1923, Reserve. Sale and scrapped 1926.
Centurion: 1914, 2nd B.S. 1916, Jutland. 1919, Mediterranean. 1924, Reserve. 1926, Radio-controlled target ship. 1941, Dummy of H.M.S. *Anson*. 1942, A.A. battery, Suez. 1944, Sunk as Normandy blockship.
Ajax: 1914, 2nd B.S. 1916, Jutland. 1919, Mediterranean including Black Sea operations. 1924, Reserve. Sale and scrapped 1926.
Audacious: 1914, 2nd B.S., mined and sunk by internal explosion off Lough Swilly.



H.M.S. Conqueror in 1918. [H.S. & R.



H.M.S. Centurion in 1914. [N.P.C.



H.M.S. King George V as in 1918. [Seward

In the "Iron Duke" class the secondary armament was increased to 6 in. guns and they were the first of our big ships to mount A.A. guns when built.

IRON DUKE CLASS.

Length: 620 ft. *Beam:* 89½ ft. *Displacement:* 26,400-30,380 tons.
Turbines: 4 screws. 30,000 h.p. 21-22 knots.
Guns: 10—13.5 in. 12—6 in. 2—3 in. A.A. *Torpedo tubes:* 4—21 in.
Armour: 12 in. belt, 11 in. turrets. *Complement:* 995-1,022.

Name	*Completed*	*Builder*	*Engines*	
Iron Duke	3/1914	P.Dy.	CL.	2nd of name (1st 1870).
Marlborough	6/1914	D.Dy.	HL.	5th of name (1st 1669).
Benbow	10/1914	WB.	WB.	3rd of name (1st 1813).
Emperor of India	11/1914	V.	V.	1st of name.

Iron Duke: 1914, Flagship C. in C. 1916, Jutland; 2nd B.S. 1919, Mediterranean. 1926, Atlantic. 1933, Partly disarmed as training ship. 1939, Depot ship, Scapa. Sale and scrapped 1946.
Marlborough: 1914, 1st B.S. 1916, Jutland, torpedoed but returned under her own power. 1919, Mediterranean. 1926, Atlantic. Sale and scrapped 1932.
Benbow: 1914, 4th B.S. 1919, Mediterranean. 1926, Atlantic. Sale and scrapped 1929-31.
Emperor of India: 1914, 4th B.S. 1919, Mediterranean. 1926, Atlantic. 1929, Used as target. Sale and scrapped 1931.

The *Erin* was ordered for Turkey as the *Reshadieh* and taken over at the outbreak of war. A fine ship, she differed from ours in having the centre (Q) turret mounted at upper deck level.

H.M.S. ERIN.

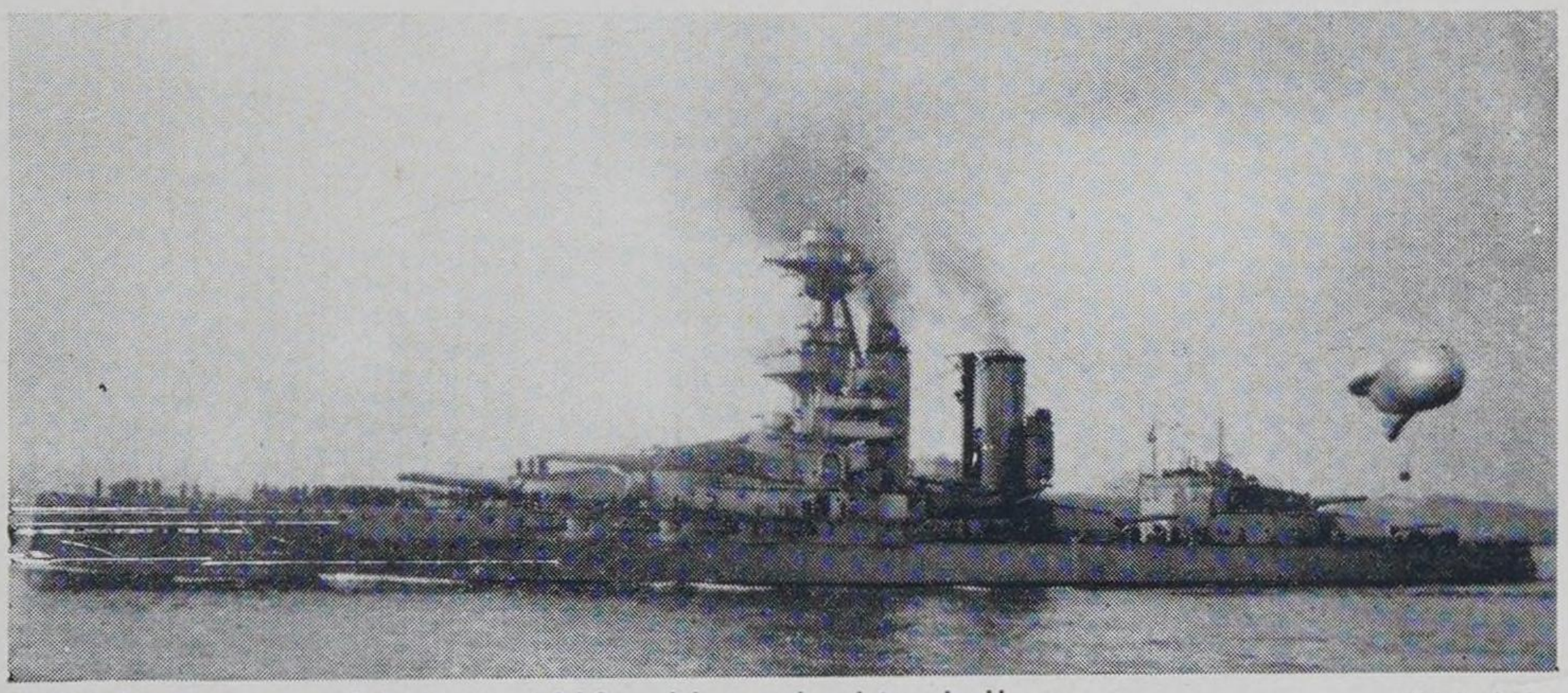
Length: 560 ft. *Beam:* 92 ft. *Displacement:* 25,250 tons.
Turbines: 4 screws. 26,500 h.p. 21 knots.
Guns: 10—13.5 in. 16—6 in. 2—3 in. A.A. *Torpedo tubes:* 4—21 in.
Armour: Belt 12 in., turrets 11 in. *Complement:* 1,130.

Name	*Completed*	*Builder*	*Engines*	
Erin	8/1914	V.	V.	1st of name.

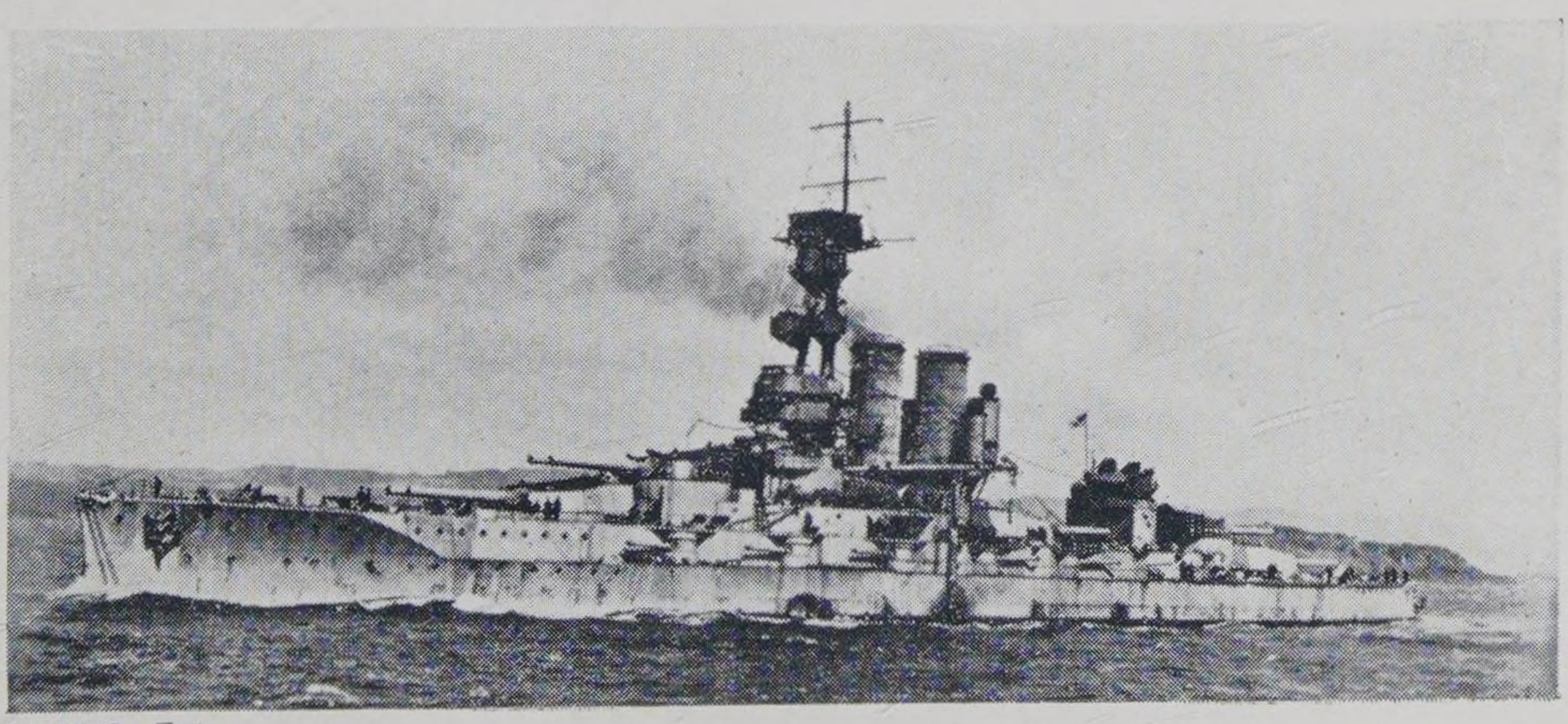
1914, 2nd B.S. 1916, Jutland. 1919, Reserve. Sale and scrapped 1921.

The *Canada* was also taken over in 1914, being on order for Chile as the *Almirante Latorre*. Generally similar but rather larger than our ships she mounted 14 in. guns in place of 13.5 in. A sister ship, the *Almirante Cochrane*, was eventually completed in 1924 as the aircraft carrier H.M.S. *Eagle*.

H.M.S. *Iron Duke*, Flagship of the C. in C., in 1914. [*Cosens*



H.M.S. *Emperor of India* in 1918. Note the kite balloon. [*H.S. & R.*



H.M.S. *Erin*.

THE BRITISH GR

ND FLEET IN 1914

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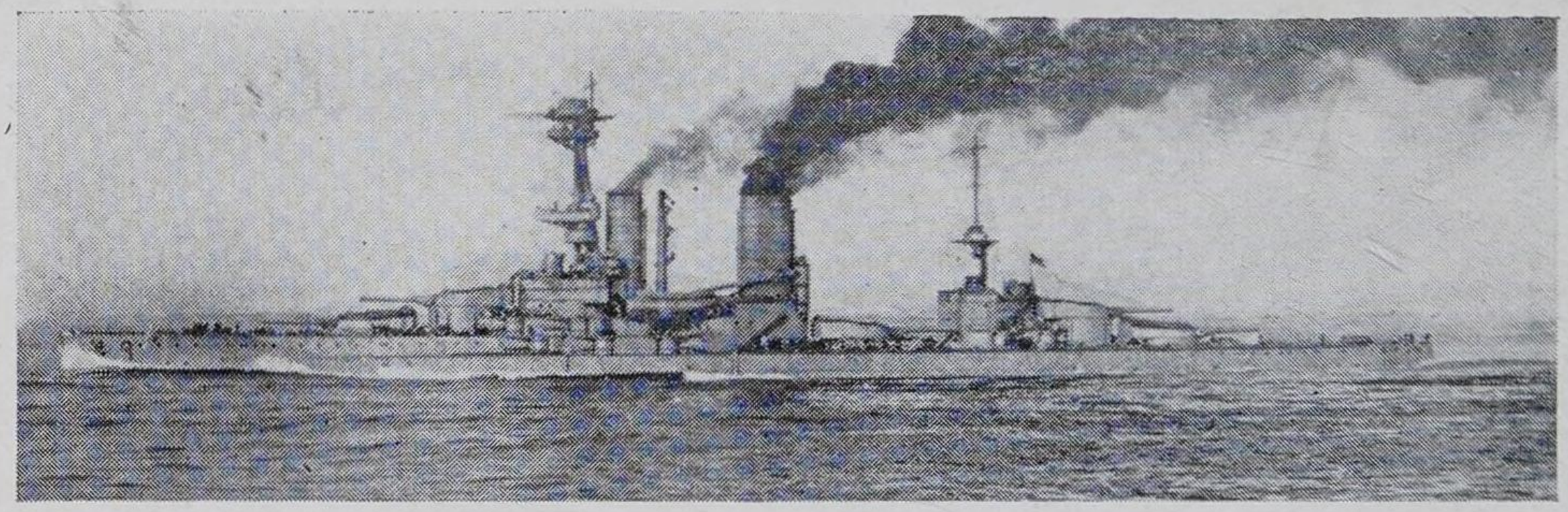


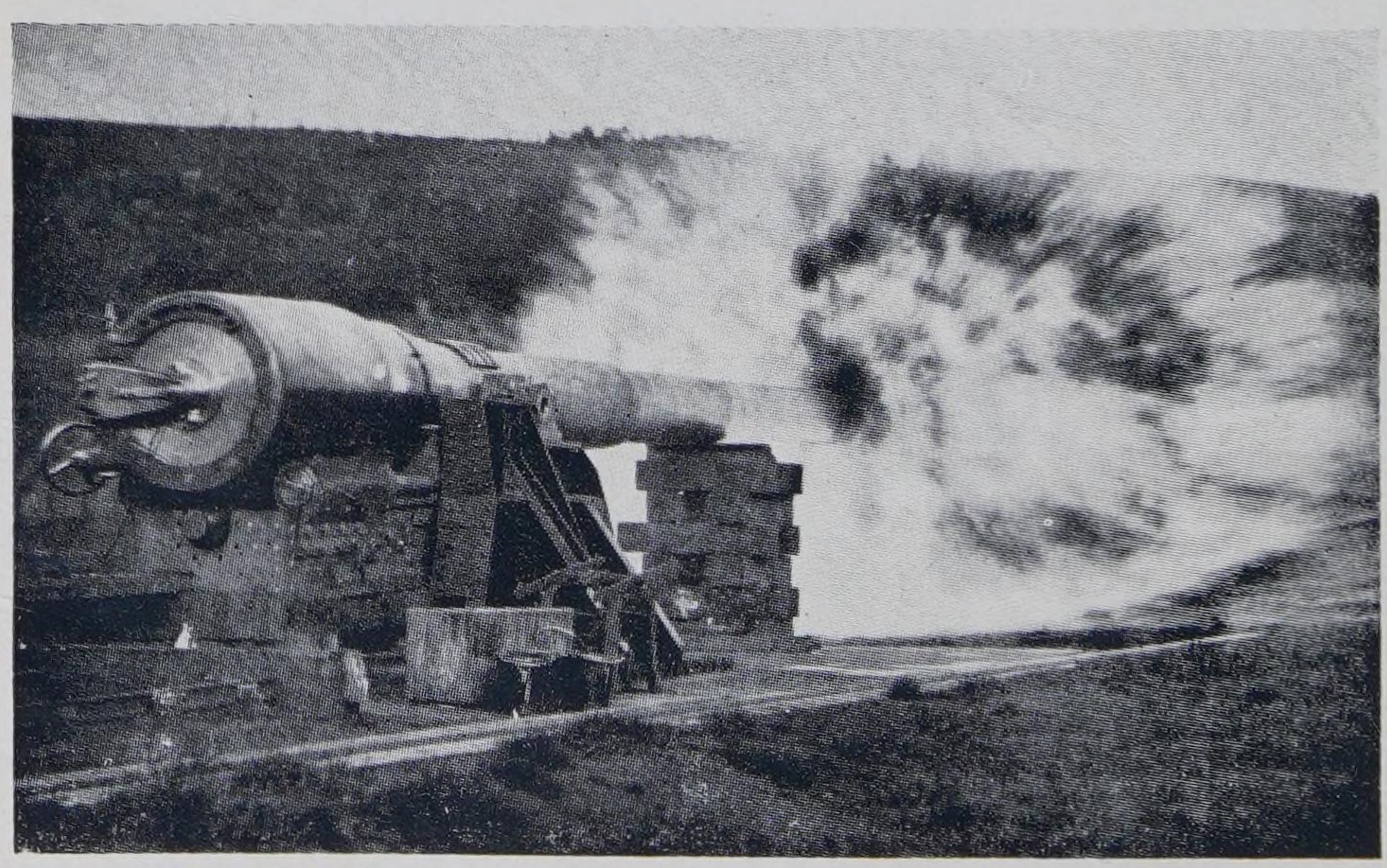
H.M.S. *Canada*. [N.P.C.

H.M.S. CANADA.

Length: 661 ft. *Beam:* 92½ ft. *Displacement:* 32,000 tons.
Turbines: 4 screws. 37,000 h.p. 23-24 knots.
Guns: 10—14 in. 12—6 in. 2—3 in. A.A. *Torpedo tubes:* 4—21 in.
Armour: Belt 9 in., turrets 10 in. *Complement:* 1,176.

Name	*Completed*	*Builder*	*Engines*	
Canada	9/1915	AW.	C.	3rd of name (1st 1765).

1915, 4th B.S. 1916, Jutland. 1920, Returned to Chile under her original name *Almirante Latorre* and still (1959) in existence.



The radial flash of a 12 in. gun. [*Vickers-Armstrongs Ltd*

Wartime Changes

Between 1914 and 1918 the appearance of many of the larger British warships underwent great changes sometimes altering them almost beyond recognition. These may be summarised:

Painting and Silhouette

1. 1914. Medium dark grey colour changed to light grey and funnel bands painted out. (Later pendant numbers were painted up for recognition purposes on large classes of destroyers and smaller vessels).

2. 1914-15. Deceptive painting took various forms:—
   (a) Mottling with white and/or dark grey.
   (b) Painting fake bow wave in white to give false impression of speed.
   (c) Painting upperworks and funnels partly white to confuse silhouette.
   (d) 1915-17. Painting dark oblong amidships to create distant impression of small ships alongside and ship therefore stationary. This device was revived in World War II.

3. 1914-15. Devices intended to confuse enemy range-finding.
   (a) Fixing spiral ribbon of canvas round topmasts.
   (b) Rigging triangular pieces of canvas to sides of funnels, sampson posts or other vertical sight lines.
   Both these proved ineffective and were abandoned.

4. Identity disguise by rigging extra (dummy) funnel, etc. This does not appear to have been used on big ships, but mention should be made of a complete fleet of dummy warships. Sixteen old merchant ships were skilfully reconstructed to resemble individual capital ships.

5. Camouflage and dazzle-painting was only applied to a few of the big ships in this book and details are given elsewhere.

Modifications begun before the War.

6. 1914-15. Very tall topmasts removed owing to improvements in wireless. They were also an aid to enemy range finders.

7. 1914-16. Torpedo nets and booms discontinued and removed. They were not removed on German ships until after Jutland.

8. 1912 onward. Funnels near bridgework heightened to keep fumes clear of working spaces. The process was extended during the War and clinker screens were fitted for added protection.

9. Change over from coal or coal and oil to oil fuel only. Important advantages gained were:—
   (a) Control of smoke.
   (b) Greater heat value of fuel bunkered (and therefore increased range).
   (c) More rapid and clean re-fuelling. "Coaling ship" became a thing of the past.
   (d) Saving in man-power by reduction of stokers and elimination of trimmers.
   Against this the protective effect of bunkered coal was lost.

Modifications during the War.

10. After-bridges, stern-walks, flying-decks and other non-essential top hamper removed, especially if affected by gun blast. After 1916 improved screening against cordite fires.

11. 1916 on. Range clocks installed on masts, and end turrets painted with deflection scales thus giving target data to adjacent ships in case of signalling breakdown.

12. Installing Carley rafts and floats as additional life saving equipment.

13. Searchlights were regrouped on special funnel platforms, etc., and from 1917 were mounted on special towers with slit ports at the base to screen operators from gun flashes.

14. Paravane equipment added to cut cables of moored mines.

15. The fitting of ships with anti-torpedo bulges started in 1916.

Modifications due to increased importance of the Air.

16. Mounting of A.A. (anti-aircraft) guns and increased deck protection.

17. 1917 on. Carriage of spotting aircraft (Sopwith " Camels ") on turret runways which could be turned into the wind for taking off. Some smaller ships were provided with hangars.

18. Carriage of kite balloons which could be sent aloft on cables for observation purposes.

Before the War it was anticipated that actions would be fought at ranges up to 10,000 yards (6 miles), but under war conditions it was soon found that effective shooting could be maintained at 20,000 yards (12 miles) or more.

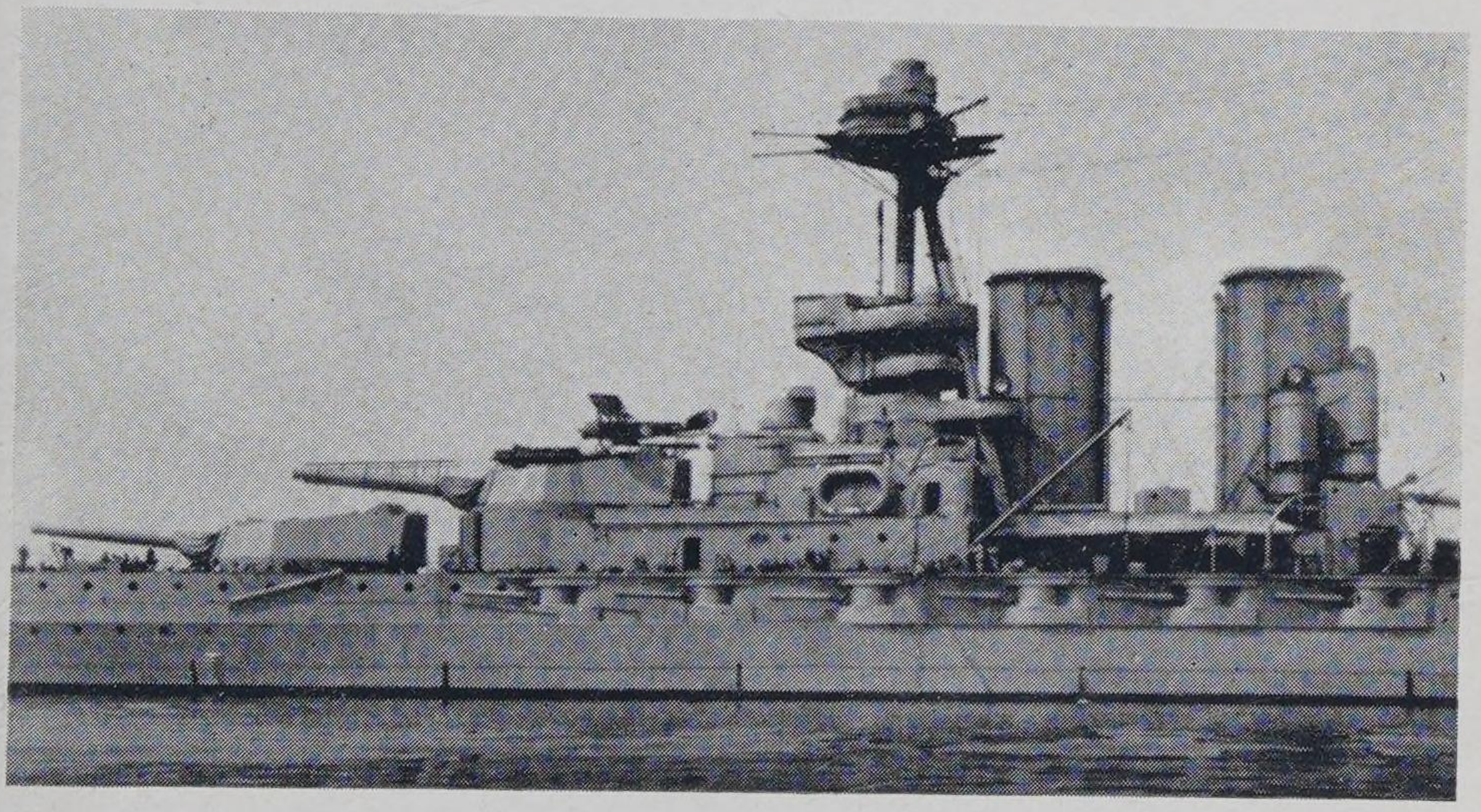
BRITISH BATTLESHIPS with 15in. GUNS.

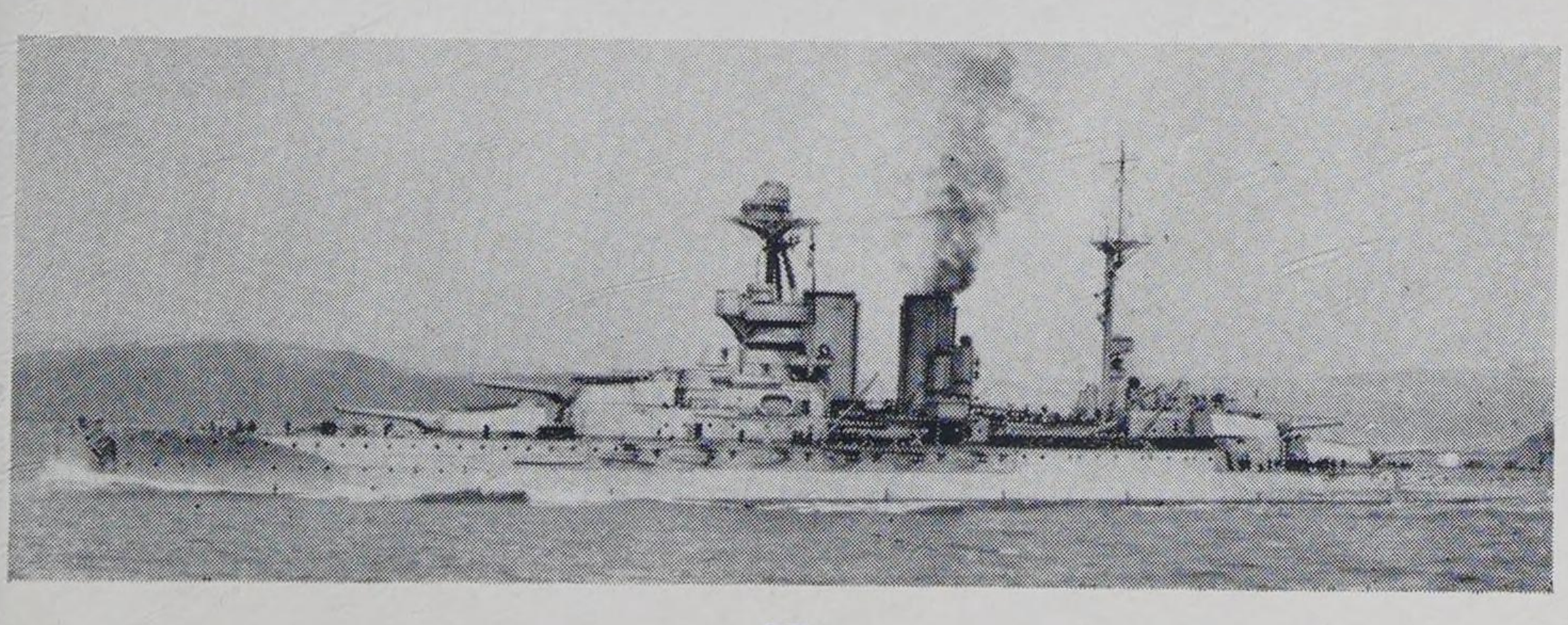
The " Queen Elizabeths " rank amongst the finest battleships ever built and were certainly the finest when built. Their new 15 in. guns proved to be about the best heavy guns mounted in the fleet. An extra four knots enabled them to act as a link between the Battle Cruisers and Battle Fleet and they rendered valiant and most effective support to the former at Jutland. They were oil-fired, coal being used for auxiliary purposes only and geared cruising turbines were installed for the first time. H.M.S. *Queen Elizabeth* was the only one to carry at first the extra four 6 in. guns aft as designed. Reconstructed between the Wars, they once again performed yeoman service in World War II.

Facing page: Top: H.M.S. *Queen Elizabeth* in 1918. The Fleet Flagship at Rosyth. [*I.W.M.*

Centre: H.M.S. *Warspite*—note spotting aircraft. [*Seward*

Bottom: H.M.S. *Valiant.* [*H.S. & R.*





THE QUEEN ELIZABETH CLASS.

Length: 640 ft. *Beam:* 90½ ft. *Displacement:* 31,000-33,000 tons.
Turbines: 4 screws. 75,000 h.p. 25 knots.
Guns: 8—15 in. 12—6 in. 2—3 in. A.A. *Torpedo tubes:* 4—21 in.
Armour: Belt 13 in., turrets 11 in. *Complement:* 955-1,016.

Name	Completed	Builder	Engines	
Queen Elizabeth	1/1915	P.Dy.	Wal.	1st of name.
Warspite	3/1915	D.Dy.	HL.	6th of name (1st 1596).
Barham	10/1915	C.	C.	4th of name (1st 1811).
Valiant	2/1916	F.	F.	7th of name (1st 1759).
Malaya	2/1916	VA.	Wal.	1st of name.

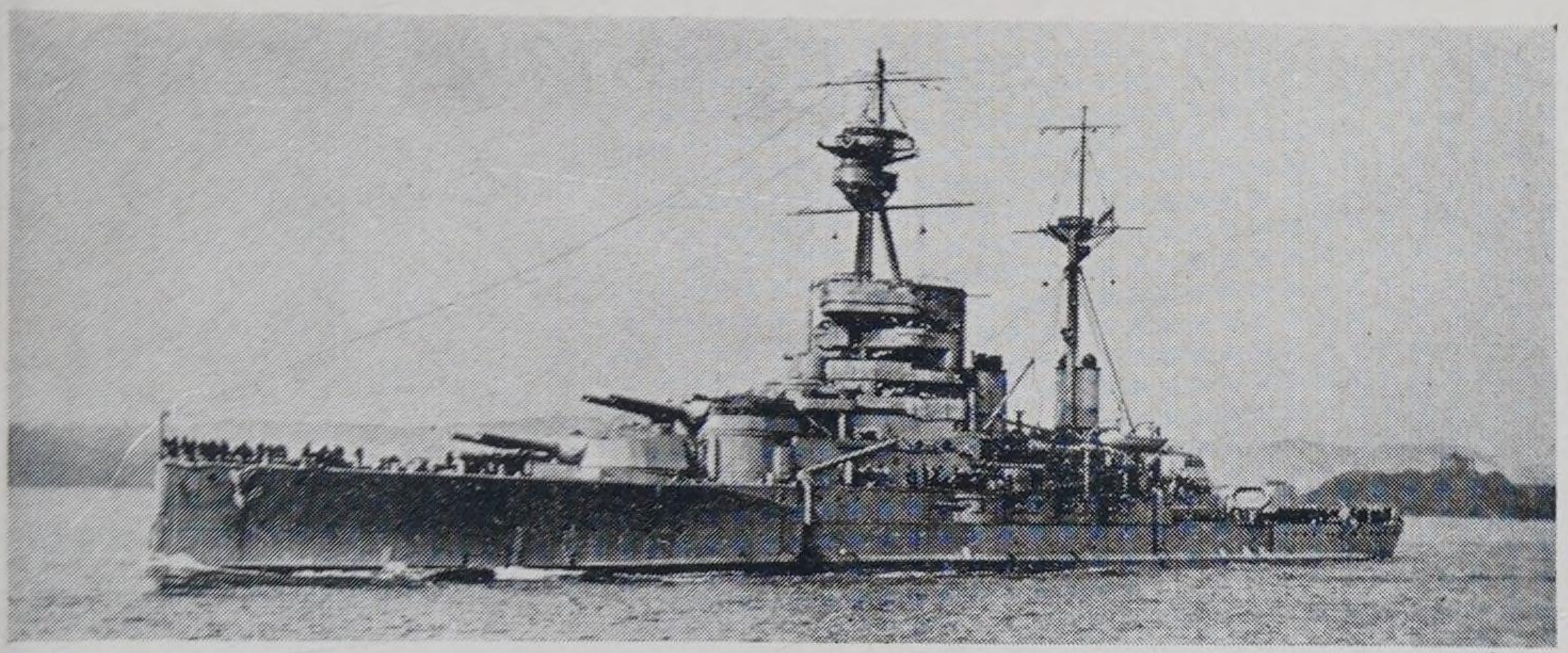
Queen Elizabeth: 1915, Dardanelles, 5th B.S. 1916, (Under refit at time of Jutland). Flagship C. in C. Sir David Beatty. 1918, Surrender of High Seas Fleet. (Subsequently reconstructed 1937-40, served throughout World War II and was sold in 1948.)
Warspite: 1915, 5th B.S. 1916, Jutland. 1919, Atlantic, etc. (Subsequently reconstructed 1934-7, served throughout World War II, sale and scrap 1946-7 and went ashore at Prussia Cove on way to shipbreakers. Dismantled at Prussia Cove.)
Barham: 1915, 5th B.S. 1916, Jutland. 1920, Atlantic, etc. (Subsequently served in World War II. 1941, hit by three torpedoes from U-boat and blew up.)
Valiant: 1916, 5th B.S., Jutland. 1919, Atlantic, etc. (Subsequently reconstructed 1937-39, served throughout World War II and was sold in 1948.)
Malaya: Gift of the Malayan Rulers. 1916, 5th B.S., Jutland. 1921, Visited Malaya, Atlantic, etc. (Subsequently reconstructed 1934-36, served throughout World War II and was sold in 1948.)

As ordered, the " Royal Sovereign " class consisted of seven ships, but two of them, *Repulse* and *Renown*, were redesigned as battle cruisers. Less graceful and speedy than the " Queen Elizabeths " they were massive and powerful ships. They were oil-fired throughout, although originally designed for coal, on the grounds that oil might be in short supply in wartime. H.M.S. *Ramillies* was the first large ship to be built with anti-torpedo bulges.

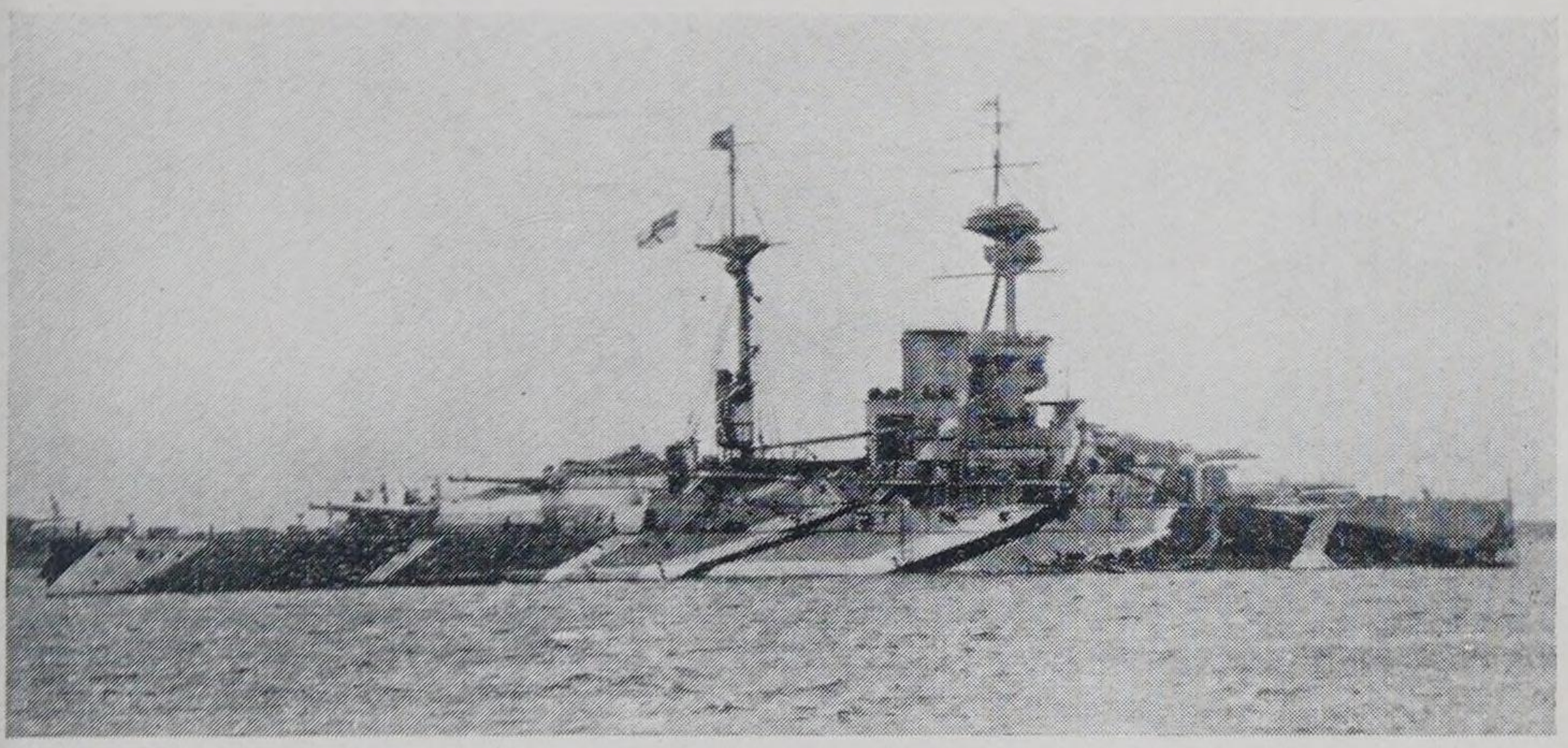
ROYAL SOVEREIGN CLASS.

Length: 624 ft. *Beam:* 88½ ft. *Displacement:* 31,250-33,500 tons.
Turbines: 4 screws. 40,000 h.p. 21-23 knots.
Guns: 8—15 in. 14—6 in. 2—3 in. A.A. *Torpedo tubes:* 4—21 in.
Armour: Belt 13 in., turrets 13 in. *Complement:* 937-997.

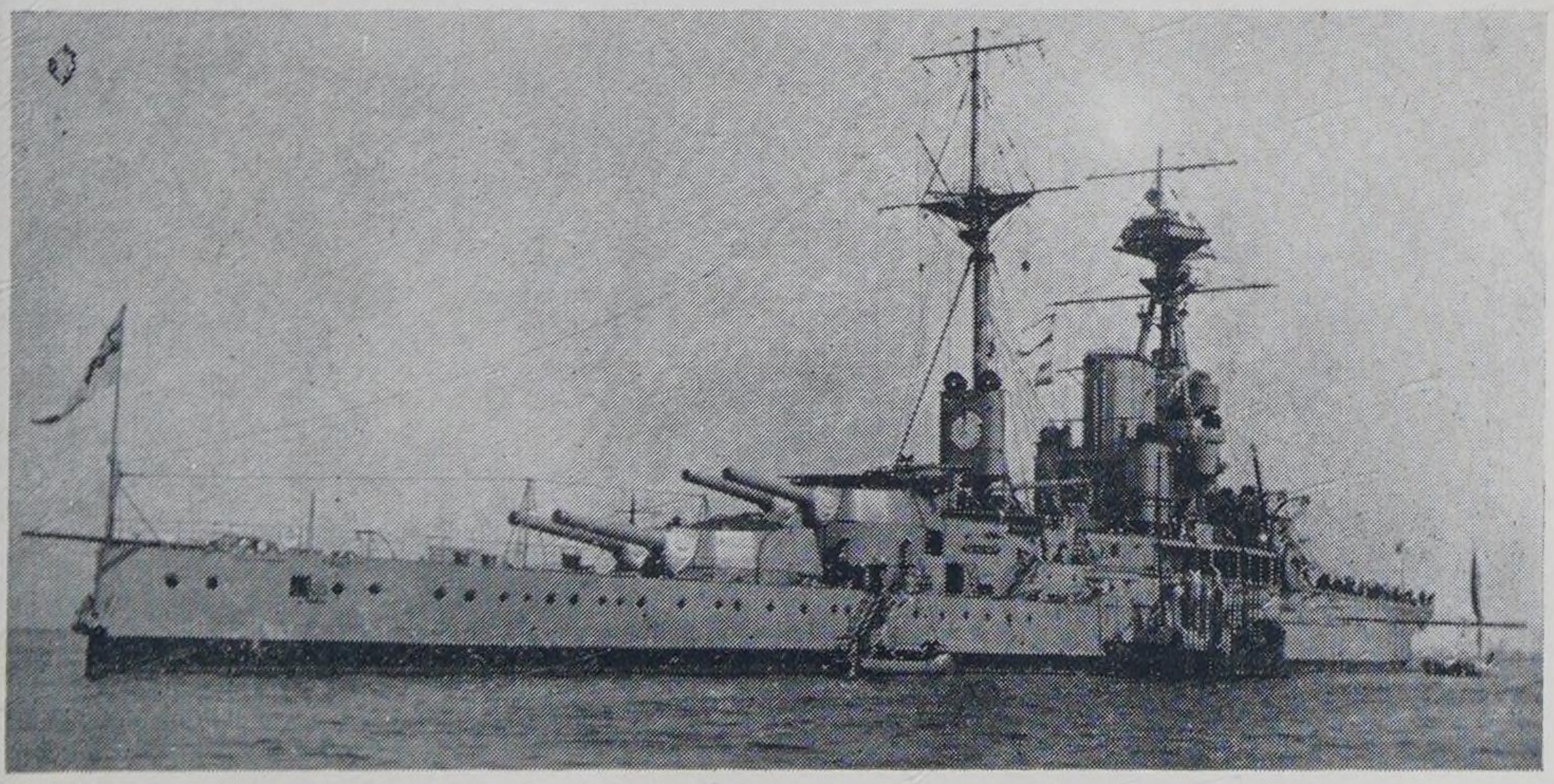
Name	Completed	Builder	Engines	
Revenge	3/1916	V.	V.	10th of name (1st 1575).
Royal Sovereign	5/1916	P.Dy.	Par.	7th of name (1st 1635).
Royal Oak	5/1916	D.Dy.	HL.	7th of name (1st 1664).
Resolution	12/1916	Pal.	Pal.	12th of name (1st 1650).
Ramillies	9/1917	WB.	WB.	5th of name (1st 1706).



H.M.S. *Revenge*.

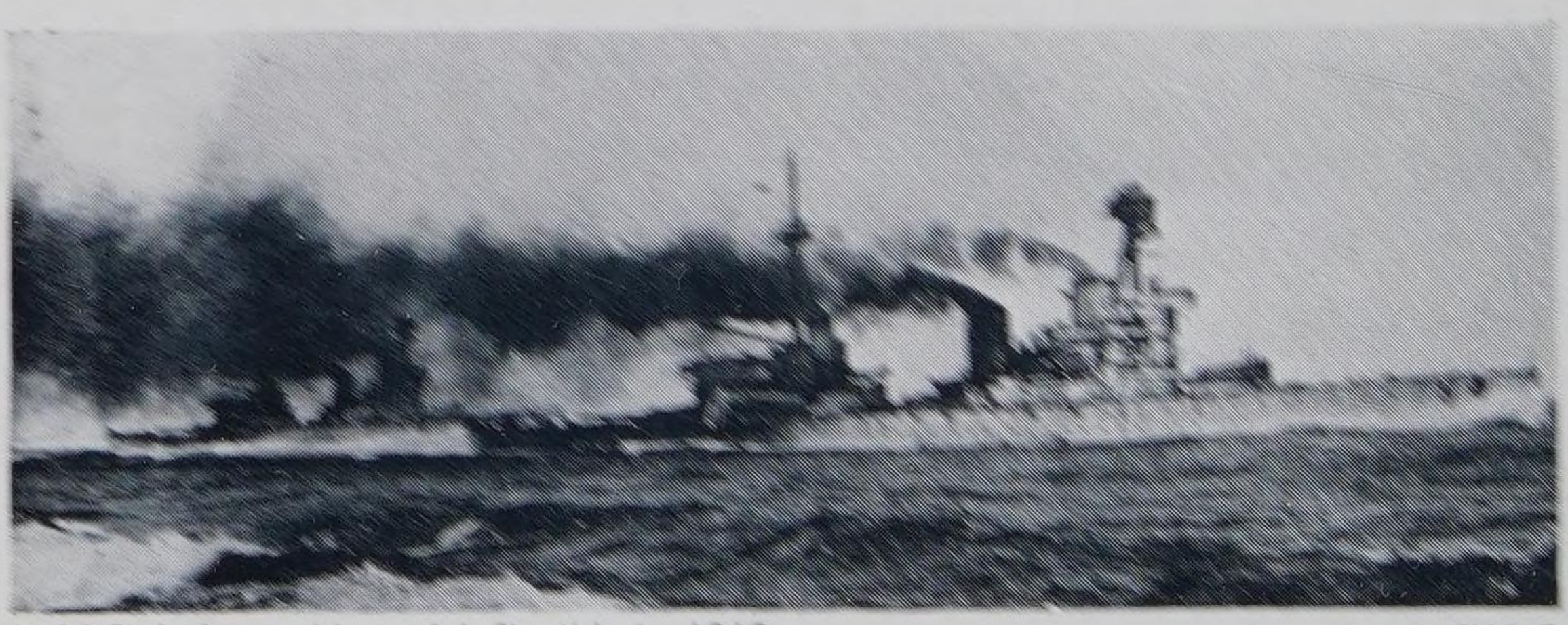


H.M.S. *Revenge* dazzle painted.

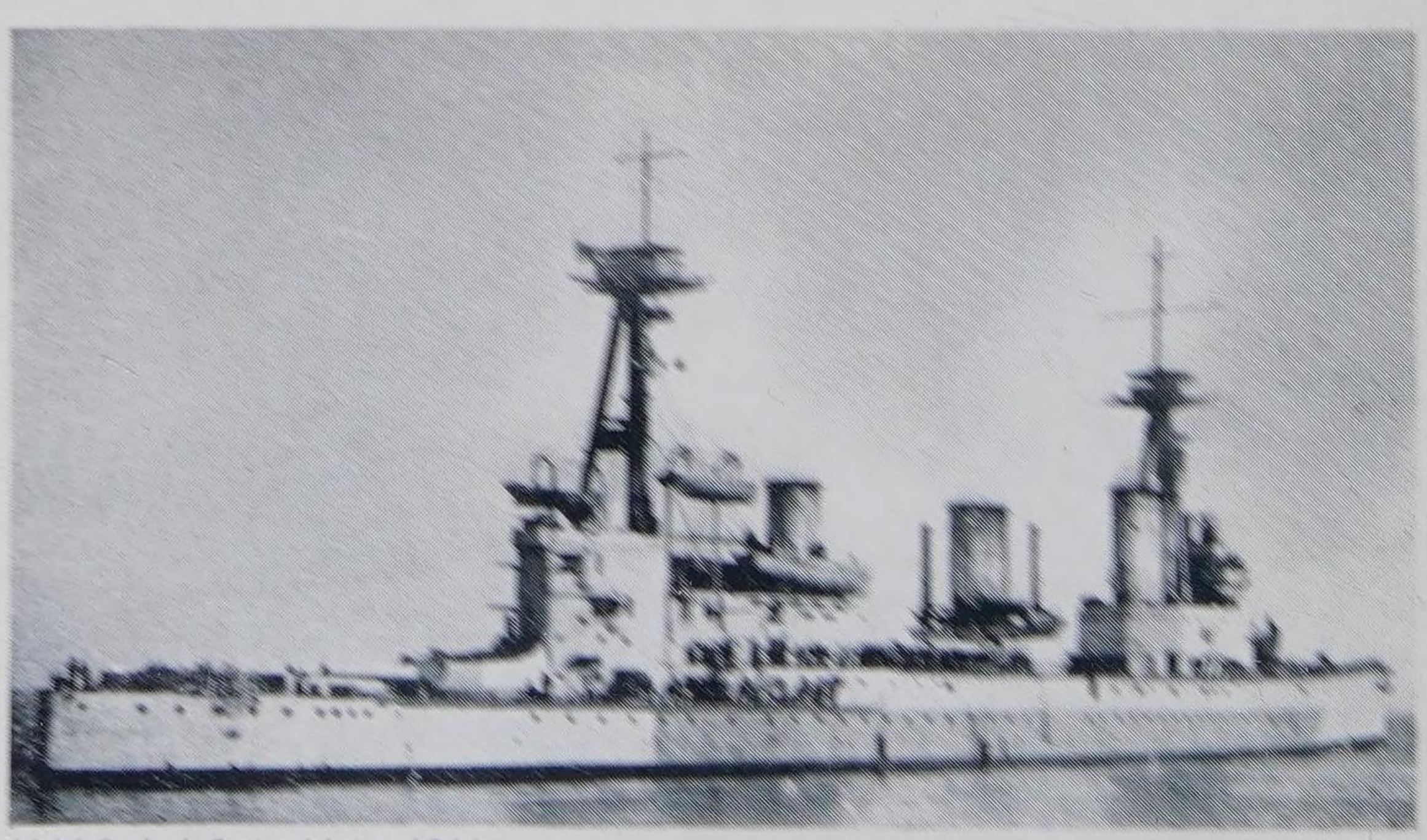


H.M.S. *Royal Oak* in 1920. [Seward

H.M.S. Invincible in 1912. [Record]



H.M.S. Indomitable and Inflexible in 1918. [N.R.C.



H.M.S. Indefatigable in 1916. [I.W.M.

Revenge: 1916, 1st B.S., Jutland. 1917-18, Dazzle painted. 1920, Mediterranean, etc. (Subsequently served throughout World War II and was sold in 1949.)
Royal Sovereign: 1916, 1st B.S. 1917-18, Dazzle painted. 1919, Atlantic, etc. (Subsequently served in World War II, 1944 loaned to the U.S.S.R. (as the *Archangelsk*) and sold on her return in 1949.)
Royal Oak: 1916, 1st B.S., Jutland. 1919, Atlantic, etc. (Subsequently in 1939 was hit by 5 torpedoes from U-boat at Scapa and sunk.)
Resolution: 1916, 1st B.S. 1919, Atlantic, etc. (Subsequently served throughout World War II and was sold in 1948.)
Ramillies: Delayed by damage at launch. 1917, 1st B.S. Experimentally camouflaged in pink. 1917-18, Dazzle painted. 1920, Mediterranean, etc. (Subsequently served throughout World War II and was sold in 1948.)

British Battle Cruisers

The original British conception of the battle cruiser was a combination of speed and gun power with protection a poor third. Such a ship would be able to destroy inferior ships and keep out of range of punishment herself. This view was fully justified at the Battle of the Falkland Is., but it was the only important action of its kind. As it happened the battle cruisers bore the brunt of the heavy fighting throughout the War as the spear-head of the Grand Fleet. The Germans, without distant commitments, designed theirs as the vanguard of the High Seas Fleet with rather less speed and considerably better protection.

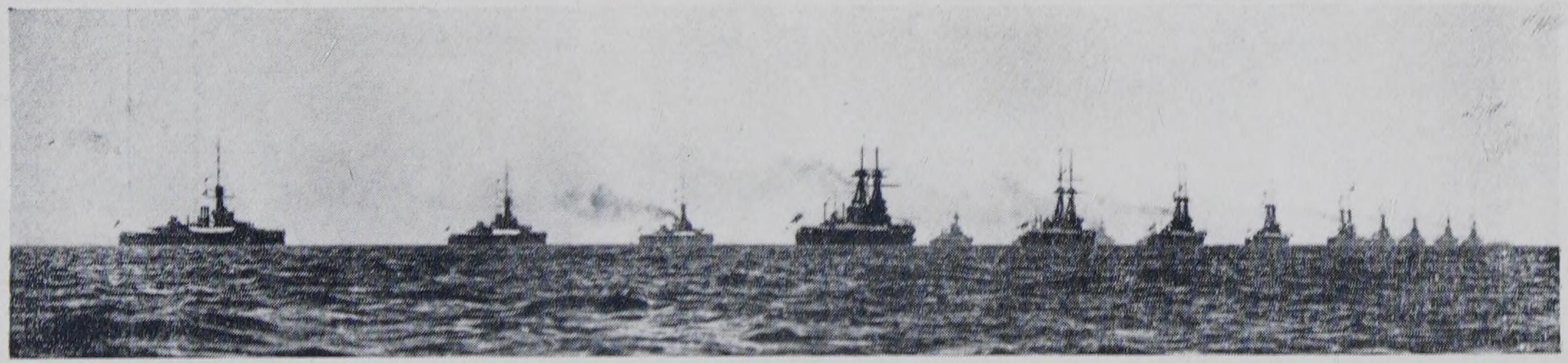
The risk of fire spreading from cordite ignited by shell burst or other causes was also underestimated by us. Even with their superior precautions the German battle cruiser *Seydlitz* nearly blew up from this cause at the Dogger Bank action in 1915 and further preventive measures were taken. It is perhaps significant that all our war losses in big ships (*Audacious*, *Indefatigable*, *Invincible*, *Queen Mary* and *Vanguard*) were finally due to internal explosions, whereas no large German ships were lost from this cause.

Battle cruisers generally resembled contemporary battleships with one turret less and much lighter armour but were considerably longer and much more powerfully engined. The first, the three Invincibles of 1908, created a tremendous impression, but the wing turret arrangement was awkward and limited the broadside to 6—12 in.

INVINCIBLE CLASS.

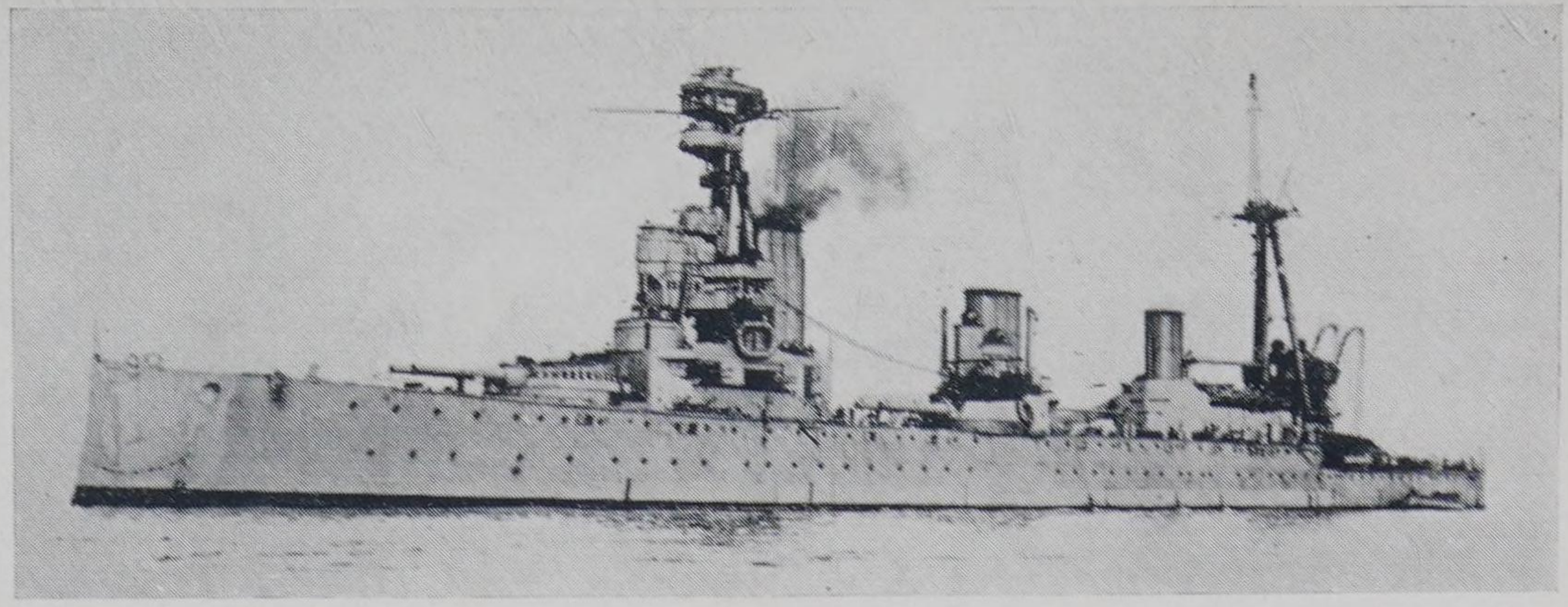
Length: 567 ft. *Beam:* 79 ft. *Displacement:* 17,250-20,000 tons.
Turbines: 4 screws. 41,000 h.p. 25-26 knots.
Guns: 8—12 in. 16—4 in.* *Torpedo tubes:* 4 (later 3)—18 in.
Armour: Belt 6 in., turrets 7 in. *Complement:* 750-837.
*Later altered to 12—4 in., 1—4 in. A.A., 1—3 in. A.A.

Name	*Completed*	*Builder*	*Engines*	
Invincible	3/1908	AW.	H.&T.	8th of name (1st 1694).
Indomitable	6/1908	F.	F.	1st of name.
Inflexible	10/1908	C.	C.	5th of name (1st 1776).

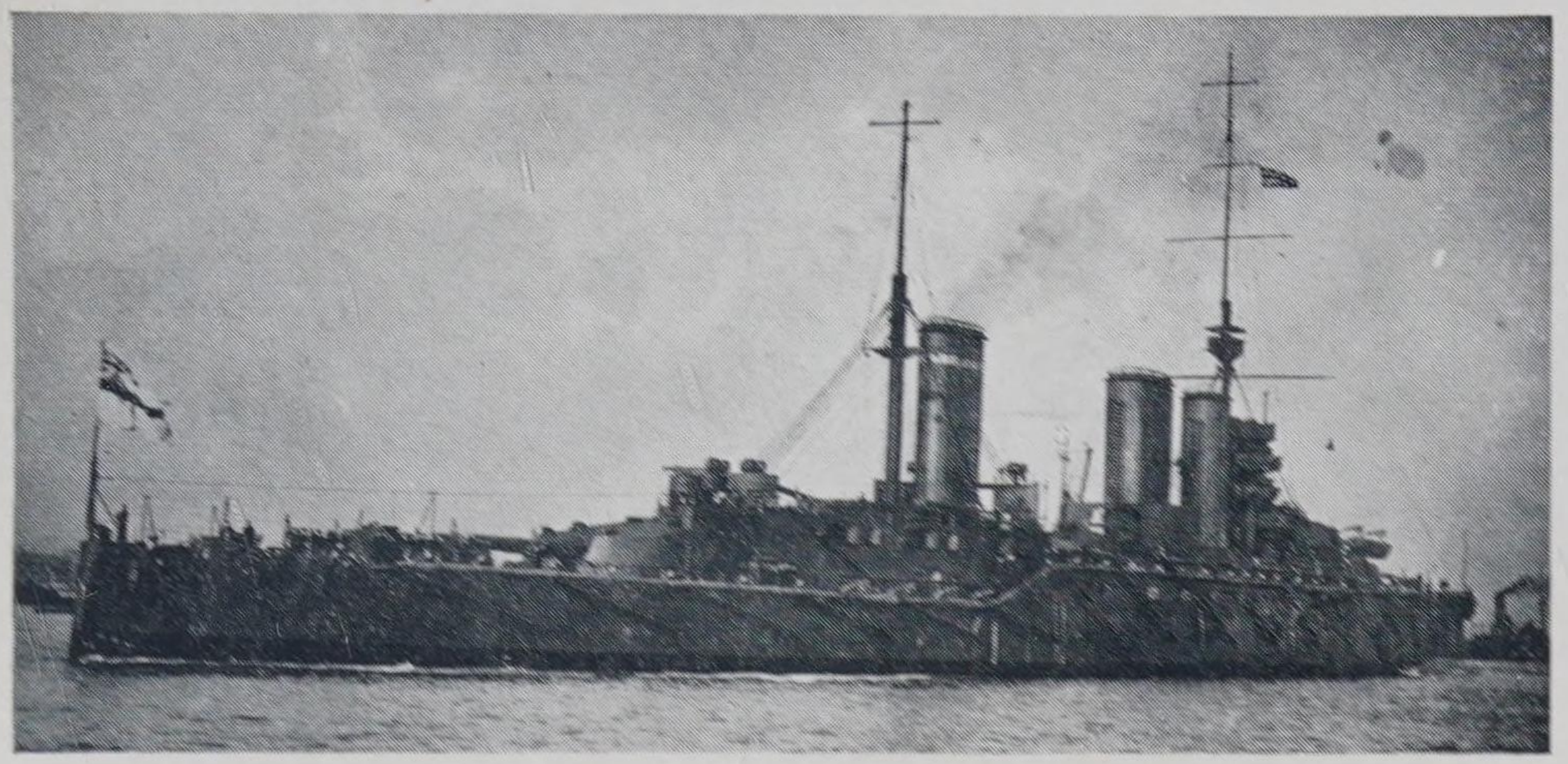


The British Fleet assembling in 1914.

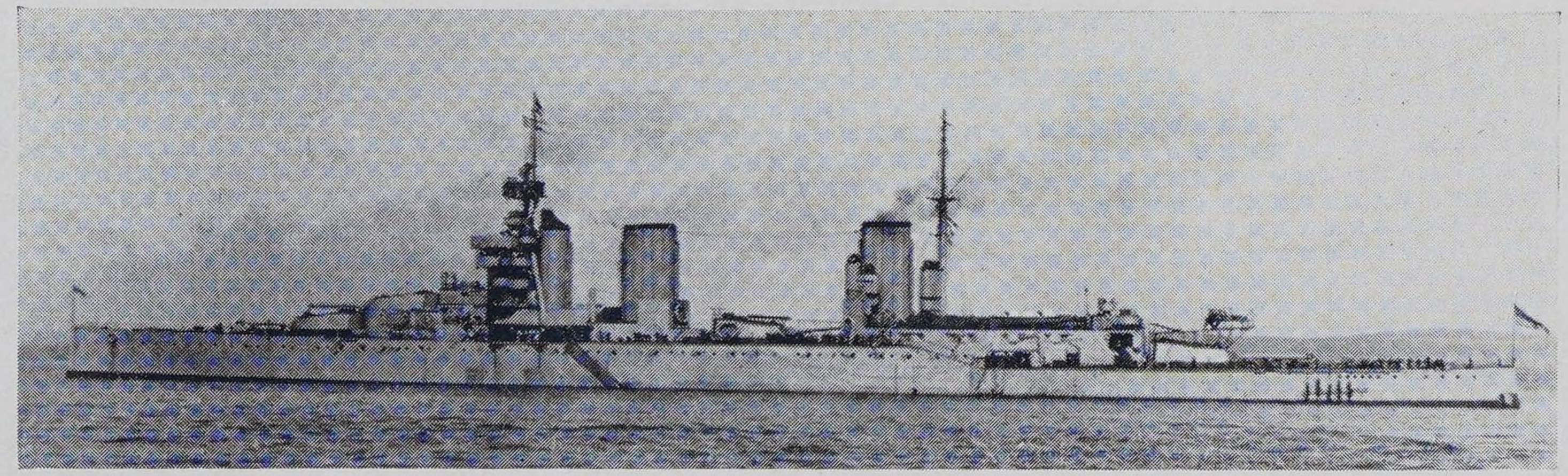
British battle cruisers steaming away to manoeuvres.



H.M.S. *New Zealand* in 1917. Note White Ensign painted on foretop. [I.W.M.



H.M.S. *Princess Royal* in 1914. [Cozens



Above: H.M.S. *Lion* in 1920. Flagship of the battle cruiser force 1915, and the 1st Battle Cruiser Squadron in 1919. [*Seward*

Below: H.M.S. *Queen Mary*, battle cruiser lost at Jutland in 1916.

Invincible: 1914, Heligoland Bight, Falkland Is. (flagship). 1915, 2nd B.S. 1916, 3rd B.S., sunk at Jutland.
Indomitable: 1914, Mediterranean. 1915, Dogger Bank. 1916, 3rd B.C.S., Jutland. 1919, Reserve. Sale and scrapped 1920-22.
Inflexible: 1914, Mediterranean. Falkland Is. 1915, Dardanelles (mined), 3rd B.C.S. 1916, Jutland. 1919, Reserve. Sale and scrapped 1920-22.

In the next class ("Indefatigable") wing turrets were still retained but better spread out, making the eight gun broadside possible.

INDEFATIGABLE CLASS.

Length: 590 ft. *Beam:* 80 ft. *Displacement:* 18,750-20,000 tons.
Turbines: 4 screws. 44,000 h.p. 25-27 knots.
Guns: 8—12 in. 16—4 in.* *Torpedo tubes:* 3 (later 2)—21 in.
Armour: belt 6 in., turrets 7 in. *Complement:* 800-860.
*Later 14—4 in., 1—4 in. A.A., 1—3 in. A.A. (Australia), 10—4 in., 1—4 in. A.A. (N.Z.).

Name	*Completed*	*Builder*	*Engines*	
Indefatigable	2/1911	D.Dy.	C.	4th of name (1st 1784).
New Zealand	1/1912	F.	F.	2nd of name (1st 1902).
Australia	6/1913	C.	C.	2nd of name (1st 1886).

Indefatigable: 1914, Mediterranean. 1915, Dardanelles. 1916, 2nd B.C.S., Sunk at Jutland.
New Zealand: Presented by New Zealand. 1914, 1st B.C.S., Heligoland Bight. 1915, Dogger Bank. 1916, Jutland, 2nd B.C.S. 1919, Tour of Dominions. 1921, Drill ship. Sale and scrapped 1922.
Australia: 1914, Pacific, etc. 1915, 2nd B.C.S. flagship. (1916, under refit at time of Jutland.) 1919, Flagship R.A.N. 1924, towed out and sunk off Sydney.

The " Lion " class or " Splendid Cats ", as battle cruiser equivalents of the " super-Dreadnoughts ", were the largest warships so far laid down. As first built, H.M.S. *Lion* had a tripod foremast just abaft the first funnel, but at full power the control top and parts of the bridgework became untenable. Higher funnels were therefore fitted, with a pole foremast forward of the funnels, which was later stiffened with tripod legs.

LION CLASS.

Length: 700 ft. *Beam:* 88½ ft. *Displacement:* 29,700 tons.
Turbines: 4 screws. 70,000-80,000 h.p. 28-32 knots.
Guns: 8—13.5 in. 16—4 in. (+ 2—3 in. A.A. later). *Torpedo tubes:* 2—21 in.
Armour: Belt 9 in., turrets 9 in. *Complement:* 1,061-85.
(*Queen Mary* was slightly larger: beam 89 ft., displacement about 30,500 tons.)

Name	*Completed*	*Builder*	*Engines*	
Lion	6/1912	D.Dy.	V.	8th of name (1st 1511).
Princess Royal	11/1912	V.	V.	6th of name (1st 1711).
Queen Mary	9/1913	Pal.	C.	1st of name.

Lion: 1914, 1st B.C.S., Heligoland Bight. 1915, Flagship B.C. Force, Dogger Bank. 1916, Jutland. 1919, 1st B.C.S. flagship. Sale and scrapped 1922-24.
Princess Royal: 1914, 1st B.C.S., Heligoland Bight. 1915, Dogger Bank. 1916, Jutland. Sale and scrapped 1923-26.
Queen Mary: 1914, 1st B.C.S., Heligoland Bight. 1916, Sunk at Jutland.

The fourth ship of the group, H.M.S. *Tiger*, was projected as a sister ship, but the design was modified on the lines of the British-built Japanese battle cruiser *Kongo*. A magnificent ship she was the heaviest in the fleet when delivered and the first to develop over 100,000 h.p. In spite of being hit 21 times at Jutland she was repaired in a month.

H.M.S. TIGER.

Length: 704 ft. *Beam:* 90½ ft. *Displacement:* 35,000 tons.
Turbines: 4 screws. 85,000-108,000 h.p. 28-30 knots.
Guns: 8—13.5 in. 12—6 in. 2—3 in. A.A. *Torpedo tubes:* 4—21 in.
Armour: Belt 9 in., turrets 9 in. *Complement:* 1,185.

Name	*Completed*	*Builder*	*Engines*	
Tiger	10/1914	C.	C.	11th of name (1st 1546).

1914, 1st B.C.S. 1915, Dogger Bank. 1916, Jutland. 1919, Atlantic, etc. Sale and scrapped 1931-32.

The next two ships were planned to provide battle cruisers with 15 in. guns. The secondary 4 in. guns were arranged in a new design of triple mountings. Fore funnels were heightened shortly after going into service, a few months after Jutland.

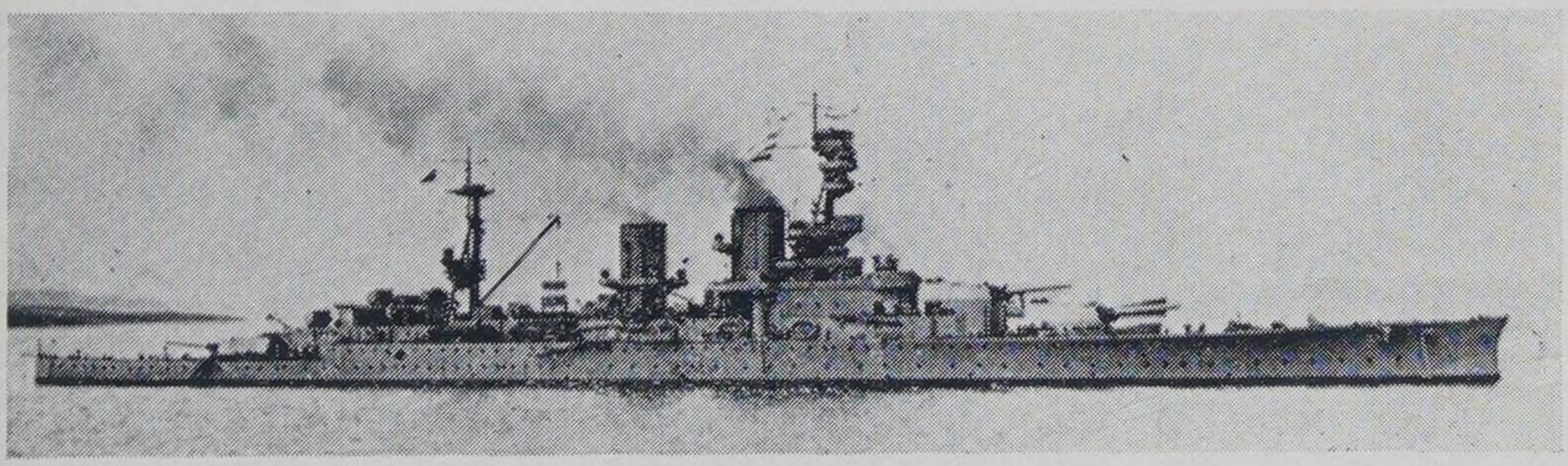
RENOWN CLASS.

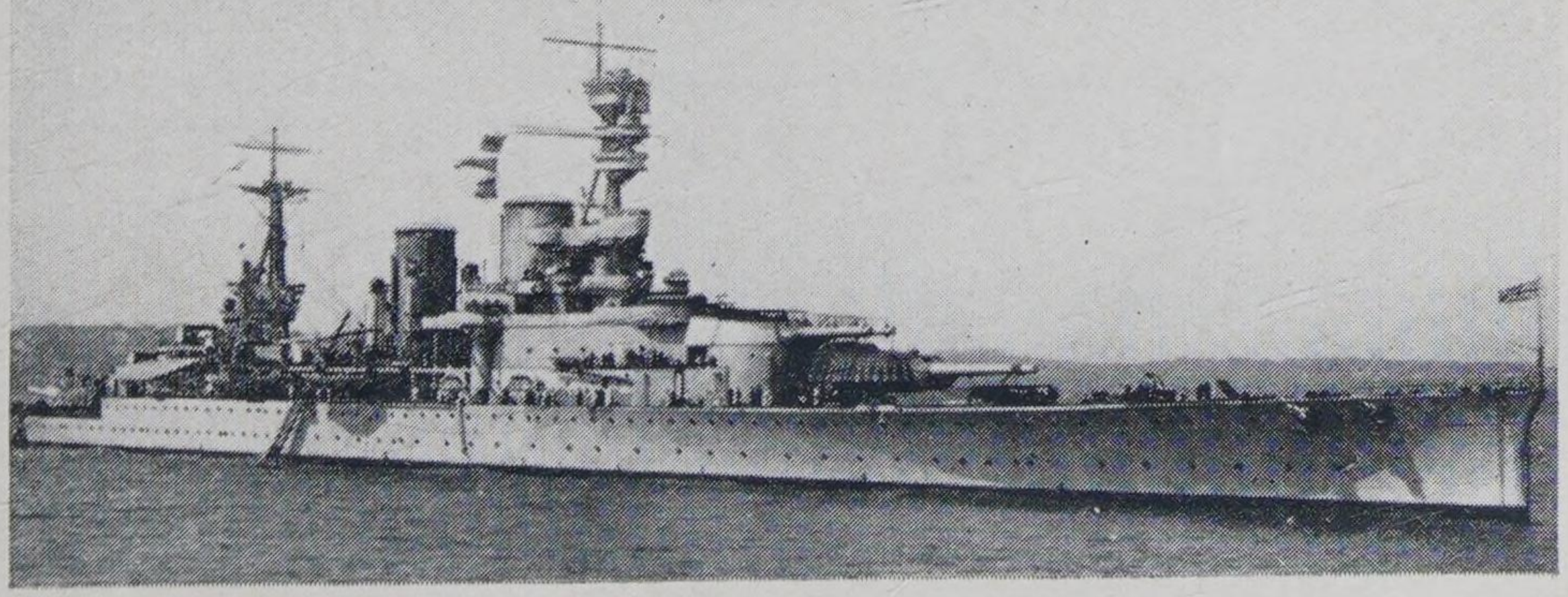
Length: 794 ft. *Beam:* 90 ft. *Displacement:* 32,700 tons.
Turbines: 4 screws. 120,000 h.p. 31-33 knots.
Guns: 6—15 in. 17—4 in. 2—3 in. A.A. *Torpedo tubes:* 2—21 in.
Armour: Belt 6 in., turrets 11 in. *Complement:* 1,000-1,250

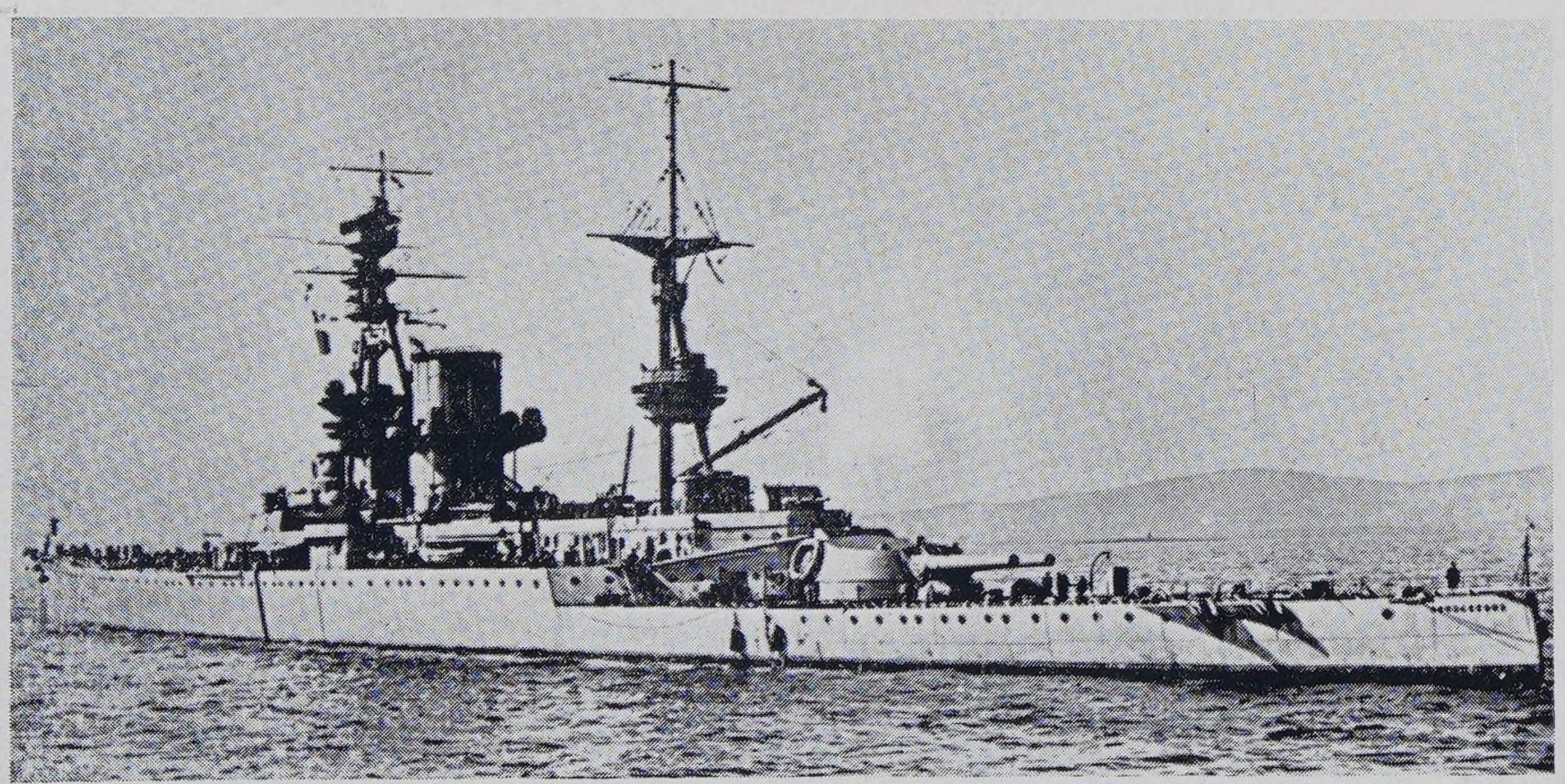
Name	*Completed*	*Builder*	*Engines*	
Repulse	8/1916	C.	C.	12th of name (1st 1595).
Renown	9/1916	F.	F.	10th of name (1st 1651).

Repulse: 1916, 1st B.C.S. 1918, Painted black and grey in subdued dazzle style, 1919, Atlantic, etc. (Subsequently served in World War II.) 1941, Sunk by Japanese dive- and torpedo-bombers off E. Malayan Coast.
Renown: 1916, 1st B.C.S. 1920, H.R.H. the Prince of Wales' World tour. (Subsequently reconstructed 1936-39, served throughout World War II and sold 1948.)

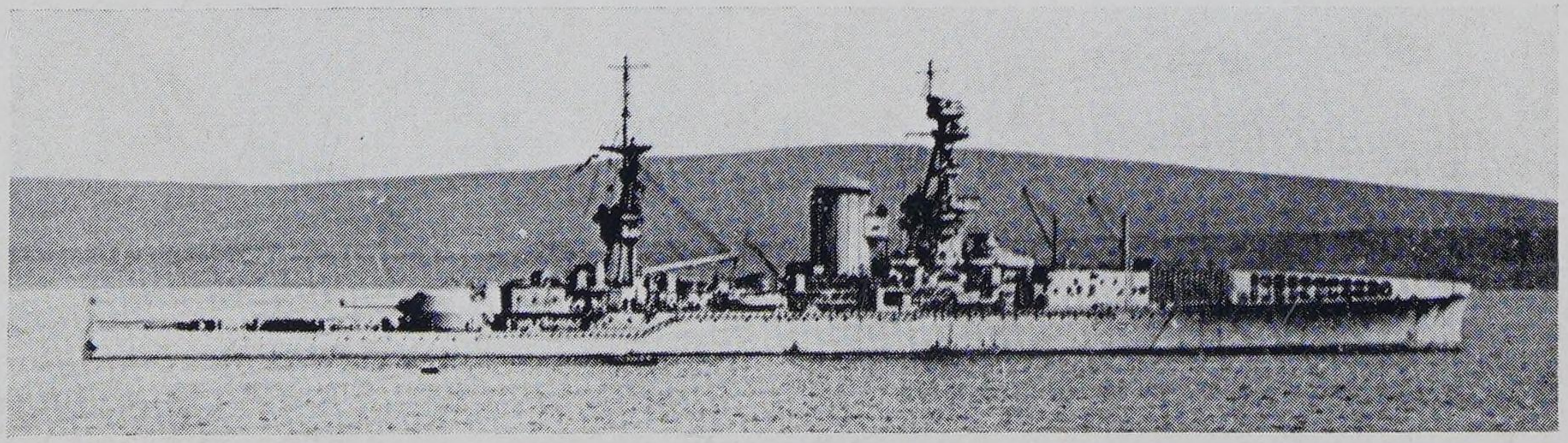
Facing page: Top to bottom: H.M.S. *Tiger*. [*H.S. & R.*
H.M. Ships *Tiger* and *Renown* in heavy weather. [*N.P.C.*
H.M.S. *Repulse* in 1916. [*N.P C.*
H.M.S. *Renown*. [*H.S. & R.*







H.M.S. *Courageous*, Glorious class cruiser, completed in 1916. After the war, *Courageous* and her sister ship *Glorious* were completely reconstructed as aircraft carriers.



H.M.S. *Furious*, completed as a partial aircraft carrier was transformed into a complete carrier in 1918, and later served in World War 2. Note the 18 in. gun on the afterdeck.

Light Battle Cruisers

Some account of these ships should be included although they were never used for the purpose for which they were built. Since about 1907 plans had been prepared for the capture of Borkum or one of the other Frisian Islands as a base for penetration of the Baltic. With the early Russian advance into East Germany in 1914 such a scheme, if successful, would have led to a link up with the Russians.

Special ships for the operation included Light Battle Cruisers with a draught of 25-26 ft.* against the 30-34 ft. of our normal battle cruisers. The first two ships were armed with four 15 in. guns and no less than fourteen 21 in. torpedo tubes, twelve being in triple mountings on deck.

* Could be reduced to 22 ft.

GLORIOUS CLASS.

Length: 786 ft. *Beam:* 81 ft. *Displacement:* 22,700 tons.
Turbines (geared): 4 screws. 90,000 h.p. 31-33 knots.
Guns: 4—15 in. 18—4 in. 2—3 in. A.A. *Torpedo tubes:* 14—21 in.
Armour: belt 3 in., turrets 9 in. *Complement:* 829-842.

Name	*Completed*	*Builder*	*Engines*	
Glorious	11/1916	H.&W.	H.&W.	1st of name.
Courageous	12/1916	AW.	Par.	3rd of name (1st 1761).

After the war these ships were laid up and later completely reconstructed as aircraft carriers in 1924-30.

The third ship was slightly larger and designed with two 18 in. guns, the largest ever mounted in the Navy. She was however completed with the forward part as an aircraft carrier and only the after 18 in. gun was mounted.

H.M.S. FURIOUS (as designed)

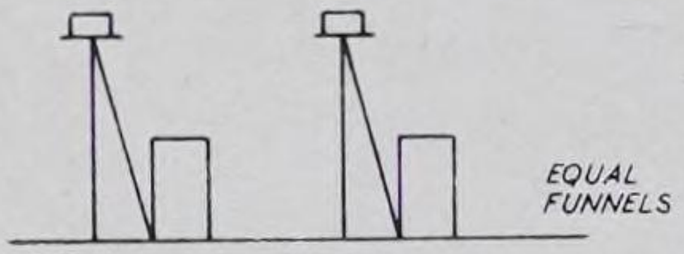
Generally similar to Glorious but 22,900 tons, 94,000 h.p. and armed:—
Guns: 2—18 in. 10—5.5 in. 4—3 in. A.A. *Torpedo tubes:* 18—21 in.

Name	*Completed*	*Builder*	*Engines*	
Furious	7/1917	AW.	Wal.	5th of name (1st 1794).

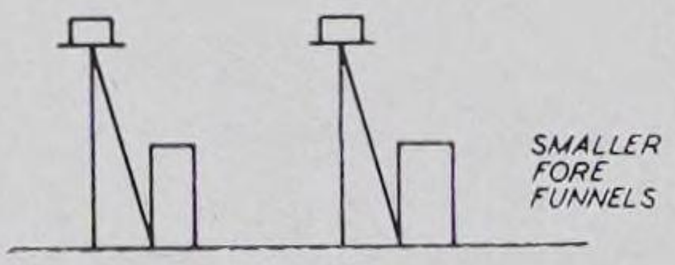
The after 18 in. gun proved a shattering weapon on a lightly built ship and was removed, the ship being transformed into a complete aircraft carrier in 1918 when she was also dazzle painted. She lived on to serve with distinction in World War II. The 18 in. guns were transferred to monitors and finally to the Singapore Naval Base.

RECOGNITION FEATURES

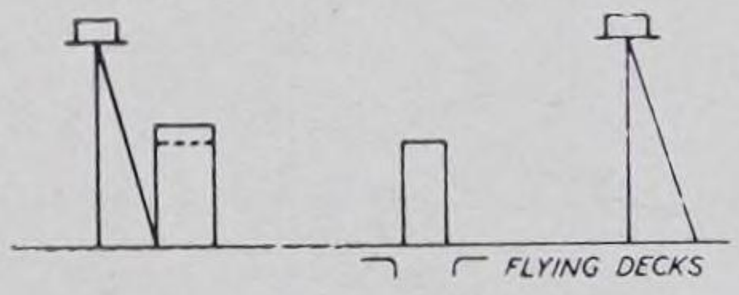
Name	1910-1914 *Funnel bands*
DREADNOUGHT	*None*



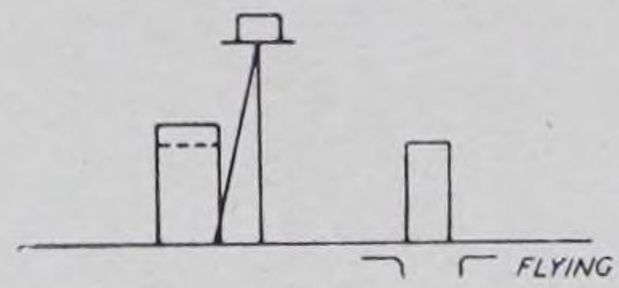
BELLEROPHON	*None*
TEMERAIRE	*2 white on each*
SUPERB	*2 white on 1st*



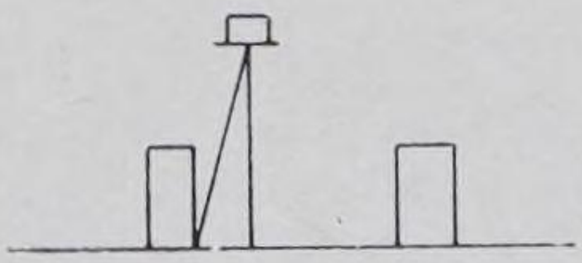
ST. VINCENT	*2 white on 2nd*
COLLINGWOOD	*1 white on 2nd*
VANGUARD	*1 red on each*



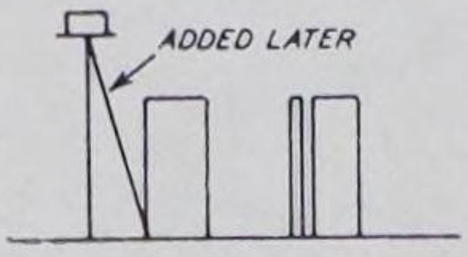
NEPTUNE	*1 white on each*



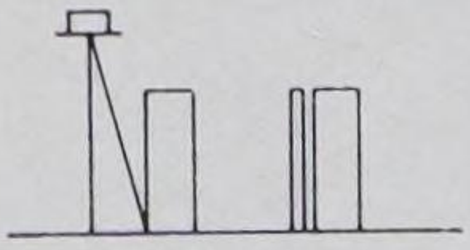
COLOSSUS	*None*
HERCULES	*1 white on 2nd*



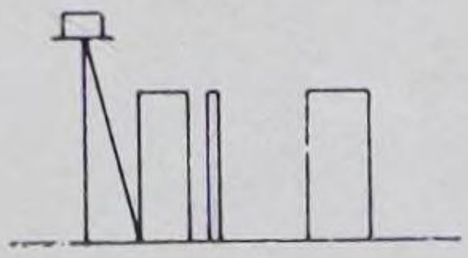
ORION	*2 white on each*
MONARCH	*2 white on 1st*
THUNDERER	*3 white on each*
CONQUEROR	*2 white on 2nd*



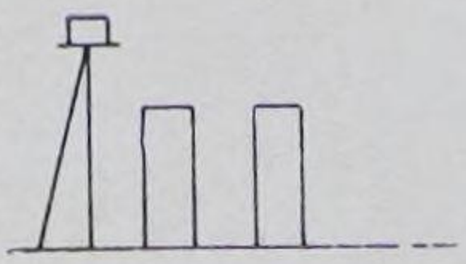
KING GEORGE V	*1 white on each*
CENTURION	*1 white on 1st*
AJAX	*None*
AUDACIOUS	*1 white on 2nd*



IRON DUKE
MARLBOROUGH
BENBOW
EMPEROR OF INDIA



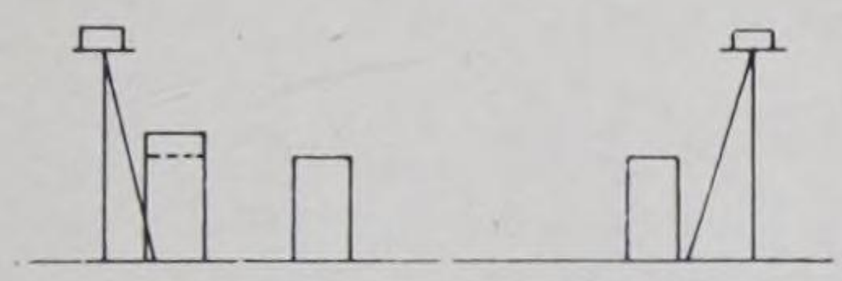
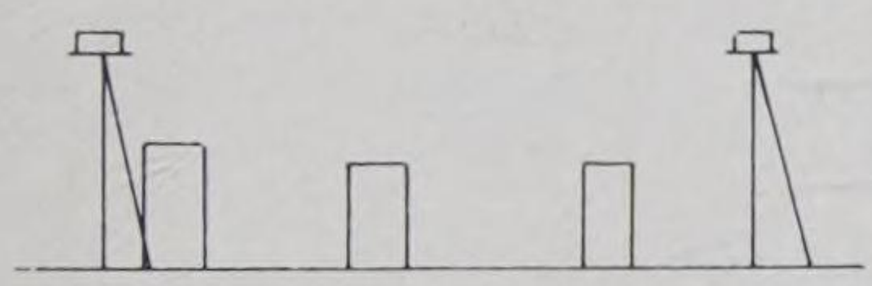
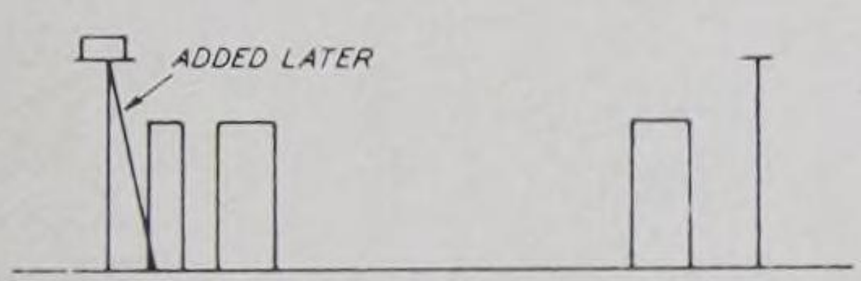
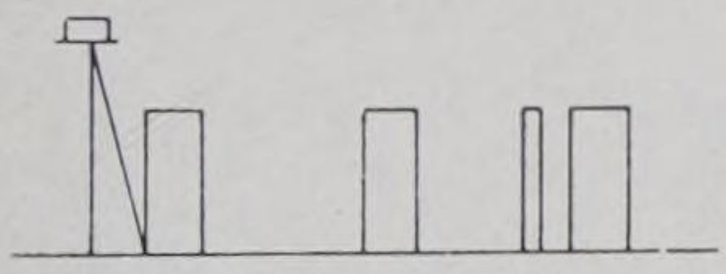
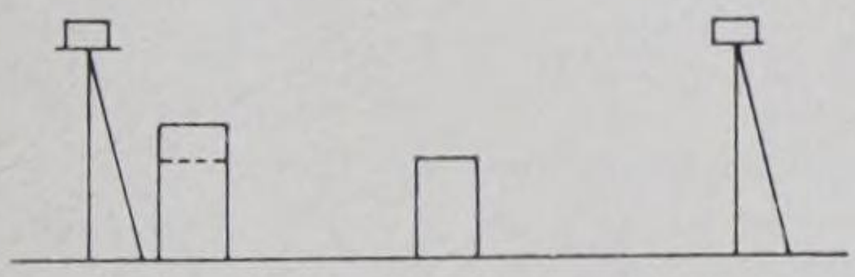
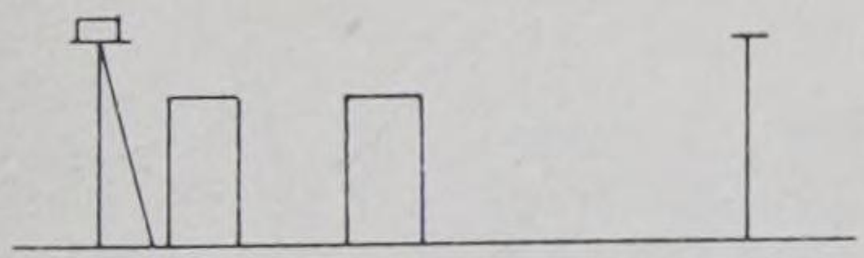
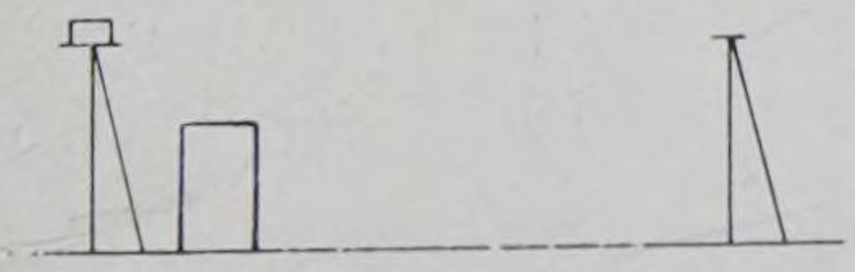
CANADA



ERIN

OF BRITISH BATTLESHIPS

(not to scale)

	Name	1910 1914 *Funnel bands*
	AGINCOURT	*None*
	INVINCIBLE	*1 white on each*
	INDC M TABLE	*1 white on 3rd*
	INFLEXIBLE	*1 white on 1st*
	INDEFATIGABLE	*None*
	NEW ZEALAND	*2 white on 3rd*
	AUSTRALIA	*None*
	LION	*None*
	PRINCESS ROYAL	*1 white on 3rd*
	QUEEN MARY	*1 white on 1st*
	TIGER	
	REPULSE	
	RENOWN	
	QUEEN ELIZABETH	
	WARSPITE	
	BARHAM	
	VALIANT	
	MALAYA	
	REVENGE	
	ROYAL SOVEREIGN	
	ROYAL OAK	
	RESOLUTION	
	RAMILLIES	
	GLORIOUS	
	COURAGEOUS	

The German High Seas Fleet

THE rise of Germany as a maritime and naval power was rapid. Between 1890 and 1910 she rose from a minor Sea Power to second place, holding the Blue Riband of the Atlantic from 1898 to 1907 with a succession of record-breaking liners. Before the 1914-1918 War the *Imperator* (1913, 52,000 tons) and *Vaterland* (1914, 54,000 tons) were the world's largest ships and their owners, the Hamburg America Line, had the world's largest fleet of merchant ships. With the opening of the Dreadnought era the challenge to Britain's maritime supremacy was plain. With warships Germany had the advantage of designing ships primarily to fight near their bases either in the North Sea or Baltic, whereas ours had to be suitable for service in all parts of the World. Not only was full advantage taken of this but the Germans seem to have shown a more accurate appreciation of battle conditions in a number of ways.

Their system of subdivision and damage control by flooding and pumping made their ships very difficult to sink. Cordite was handled in canisters and cartridge cases instead of bags, which reduced the risk of fire. The accurate ranging of their opening salvos was often remarkable. Night signalling and searchlight control were excellent. Ships were at all times painted in the war-time light grey.

In the following notes abbreviations used for the German yards which built Dreadnought battleships and battle cruisers are:—

Wn.Dy.	WILHELMSHAVEN DOCKYARD.
K.Dy.	KIEL DOCKYARD.
Ger.	KRUPP'S GERMANIA YARD (KIEL).
How.	HOWALDT (KIEL).
Wes.	WESER (BREMEN).
B. & V.	BLOHM & VOSS (HAMBURG).
Vul (H)	VULCAN (HAMBURG).
Vul (S)	VULCAN (STETTIN).
Sch.	SCHICHAU (DANZIG).

English spelling has been used for the *Koenig* (König), *Goeben* (Göben) and *Bluecher* (Blücher).

Against our fifty serviceable pre-Dreadnoughts Germany had twenty, of which six (*Deutschland*, *Pommern*, *Schlesien*, *Schleswig Holstein*, *Hanover* and *Hessen*) formed the 2nd B.S. at Jutland, where S.M.S. *Pommern* was sunk.

German Battleships (Dreadnoughts)

The early German Dreadnoughts resembled ours but had two turrets on either side, thus with six turrets only four could be brought to bear for broadsides. The four "Westfalens" had 11 in. guns and the larger "Helgolands" which followed, 12 in. All were on the same plan and the persistence of the wing turret arrangement is difficult to account for.

WESTFALEN CLASS.

Length: 478 ft. *Beam:* 89 ft. *Displacement:* 18,900 tons.
Triple expansion: 3 screws. 20,000-28,000 h.p. 20 knots.
Guns: 12—11 in. 12—5.9 in. (16—3.4 in.*) *Torpedo tubes:* 6—17.7 in.
Armour: belt 11½ in., turrets 11½ in. *Complement:* 1,008-1,087.
*Later removed and 2—3.4 in. A.A. added.

Name	*Completed*	*Builder*	
Westfalen	10/1909	Wes.	1924 Scrapped at Birkenhead
Nassau	10/1909	Wn.Dy.	1921 Scrapped on the Tees
Posen	3/1910	Ger.	1922 Scrapped in Holland
Rheinland	3/1910	Vul.(S)	1921 „ „ „

1916, all four ships at Jutland. 1919, Disarmed and later scrapped. The "Westfalens" and "Helgolands" formed the German 1st B.S.

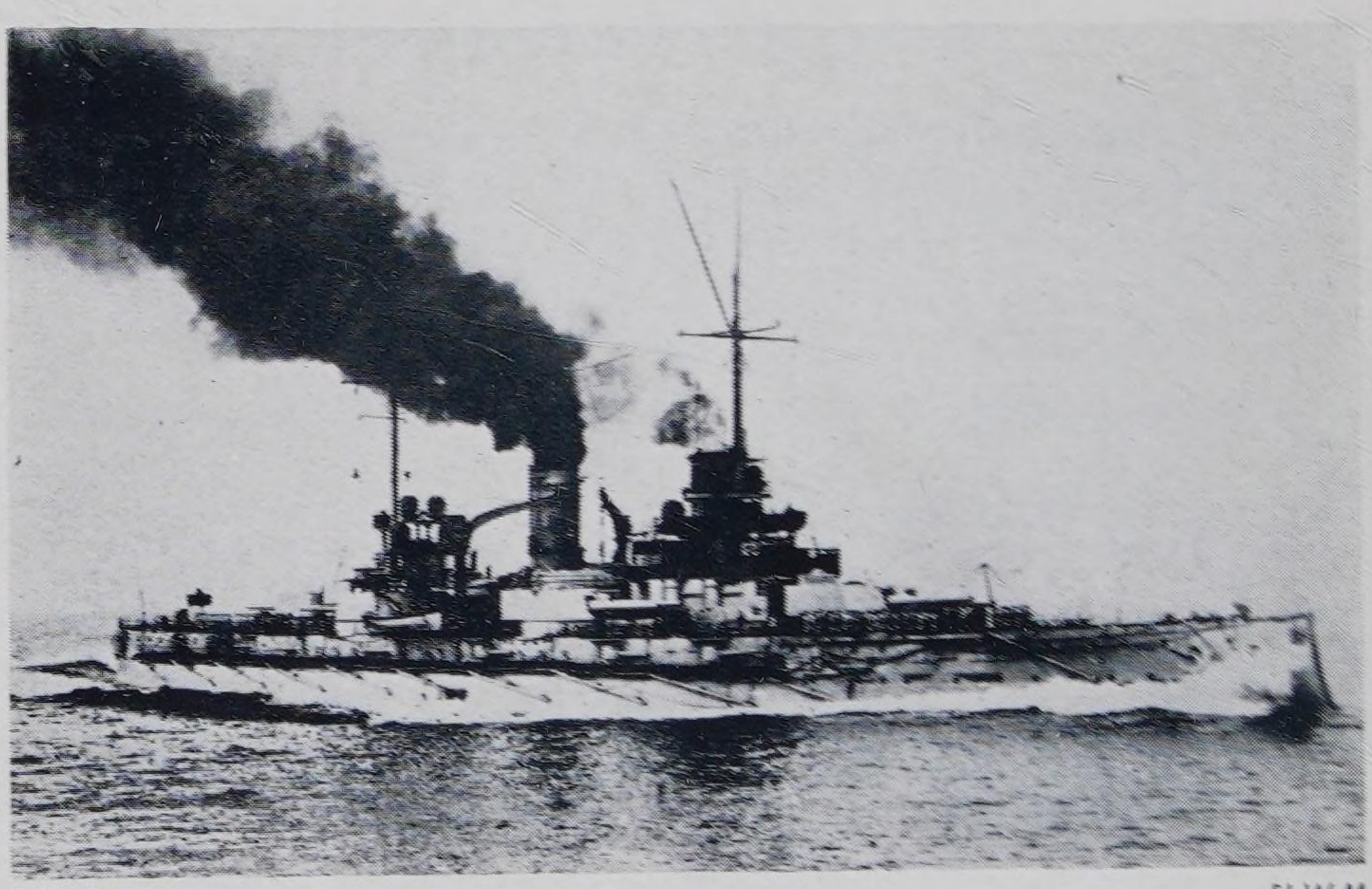
HELGOLAND CLASS.

Length: 546 ft. *Beam:* 93½ ft. *Displacement:* 22,800 tons.
Triple expansion: 3 screws. 28,000-35,000 h.p. 21 knots.
Guns: 12—12 in. 14—5.9 in. 14—3.4 in.* *Torpedo tubes:* 6—19.7 in.
Armour: belt 11¾ in., turrets 12 in., *Complement:* 1,113-1,192.
*Later removed and 2—3.4 in. A.A. added.

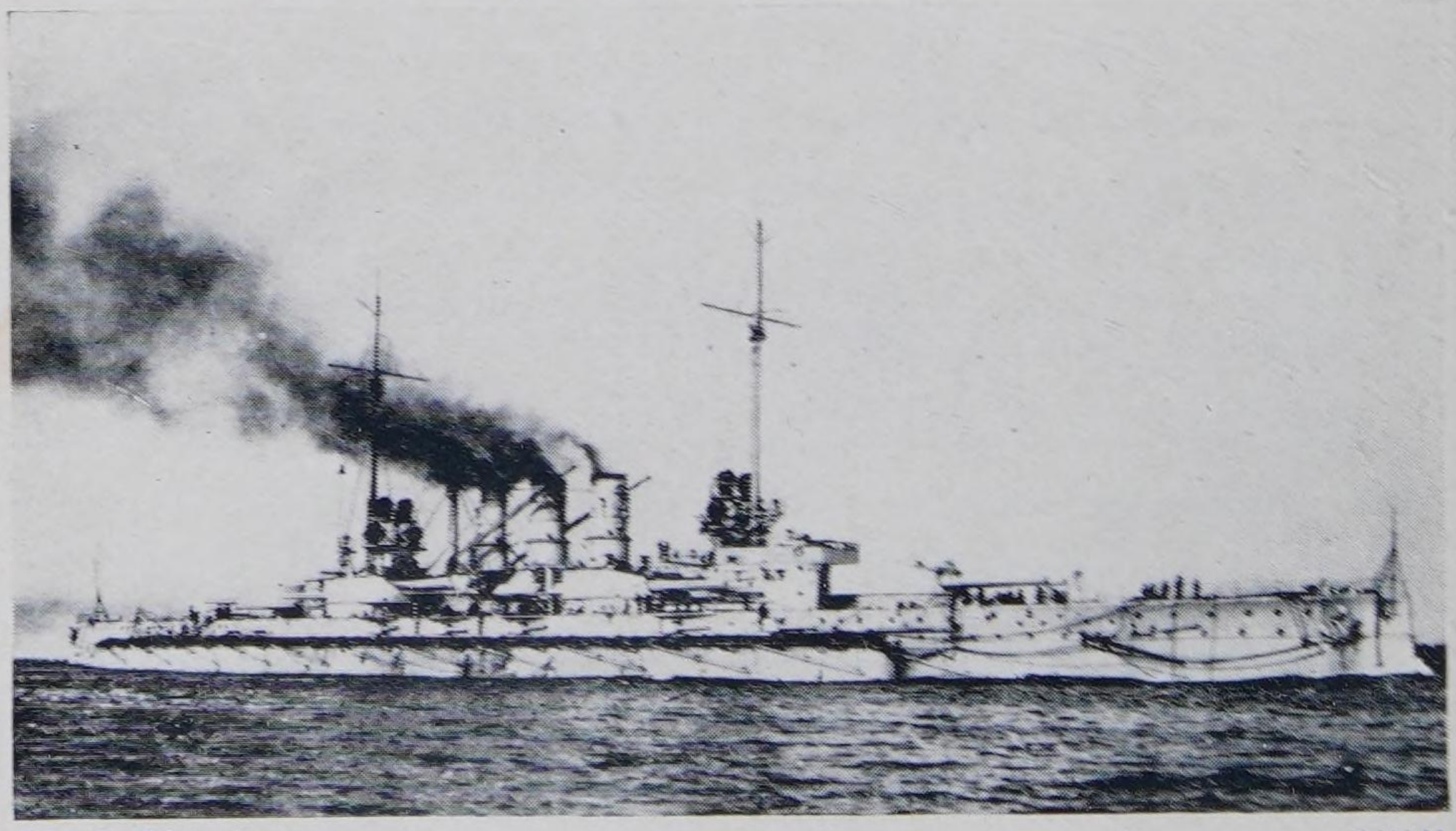
Name	*Completed*	*Builder*	
Thuringen	6/1911	Wes.	to France. Scrapped 1923
Helgoland	8/1911	How.	1924 Scrapped at Morcombe
Ostfriesland	8/1911	Wn.Dy.	1921 Sunk in bombing tests, U.S.A.
Oldenburg	8/1912	Sch.	1921 Scrapped in Holland

1916, All four ships at Jutland. 1919, Disarmed and later scrapped.

The succeeding Kaiser class had a turret arrangement similar to H.M.S. *Neptune*, but by splitting the upperworks and uptakes into two widely spaced "islands", the rather impracticable flying deck was dispensed with. Five ships were built in order to provide a fleet flagship in S.M.S. *Friedrich der Grosse*. In the later "Koenig" class the turret arrangement was similar to our 13.5 in. gun ships.



S.M.S. *Nassau.* [I.W.M.



S.M.S. *Oldenburg.* [I.W.M.

KAISER CLASS.

Length: 564 ft. *Beam:* 95¼ ft. *Displacement:* 24,380 tons.
Turbines: 3 screws. 30,000-35,000 h.p. 21-23 knots.
Guns: 10—12 in. 14—5.9 in. 8—3.4 in. 4—3.4 in. A.A.
Torpedo tubes: 5—19.7 in.
Armour: belt 13¾ in., turrets 11¾ in. *Complement:* 1,088-1178.

Name	*Completed*	*Builder*	
Kaiser	10/1912	K.Dy.	1929-30 Raised and Scrapped
Friedrich der Grosse	10/1912	Vul(H).	1936-7 ,, ,, ,,
Kaiserin	8/1913	How.	1936 ,, ,, ,,
Prinz Regent Luitpold	8/1913	Sch.	1931-3 ,, ,, ,,
Koenig Albert	8/1913	Ger.	1935-6 ,, ,, ,,

1914, *Friedrich der Grosse* flagship C. in C.; others formed 3rd B.S. 1916, All except *Koenig Albert* at Jutland. 1918, All five surrendered and were interned at Scapa. 1919, scuttled. In later years a number of scuttled ships of various classes were refloated keel upwards and scrapped in Britain.

KOENIG CLASS.

Length: 580 ft. *Beam:* 97 ft. *Displacement:* 25,390 tons.
Turbines: 3 screws. 31,000-35,000 h.p. 21-23 knots.
Guns: 10—12 in. 14—5.9 in. 6—3.4 in. 4—3.4 in. A.A.
Torpedo tubes: 5—19.7 in.
Armour: belt 13¾ in., turrets 13¾ in. *Complement:* 1,136-1,218.

Name	*Completed*	*Builder*	
Koenig	10/1914	Wn.Dy.	
Markgraf	10/1914	Wes.	
Grosser Kurfurst	7/1914	Vul(H).	
Kronprinz Wilhelm	11/1914	Ger.	

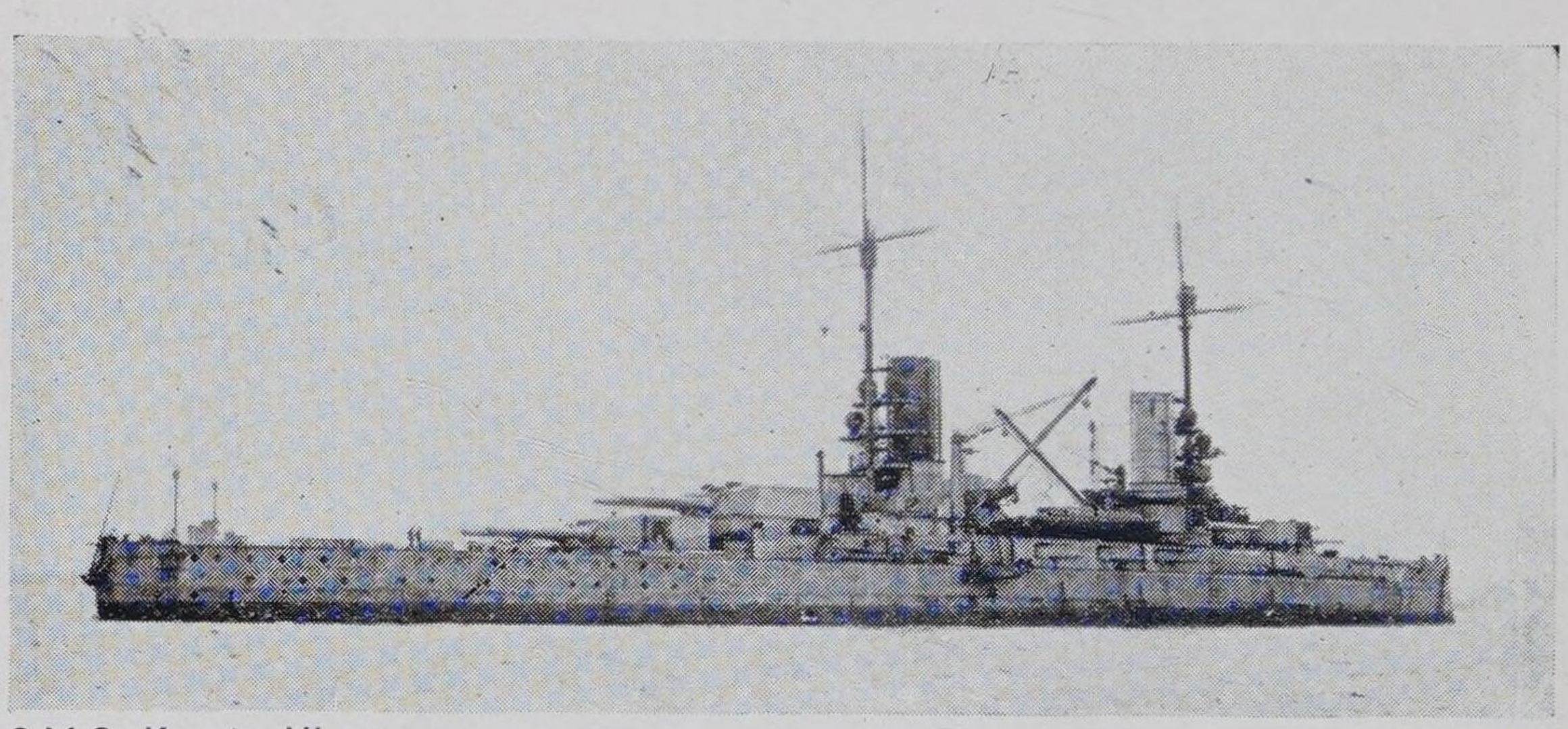
1914-15, Joined the " Kaisers " in the 3rd B.S. 1916, All at Jutland. 1918, All surrendered and were interned at Scapa. 1919, All scuttled, and not raised.

The last German battleships built in this era were their reply to our " Queen Elizabeths ". None were completed until after Jutland.

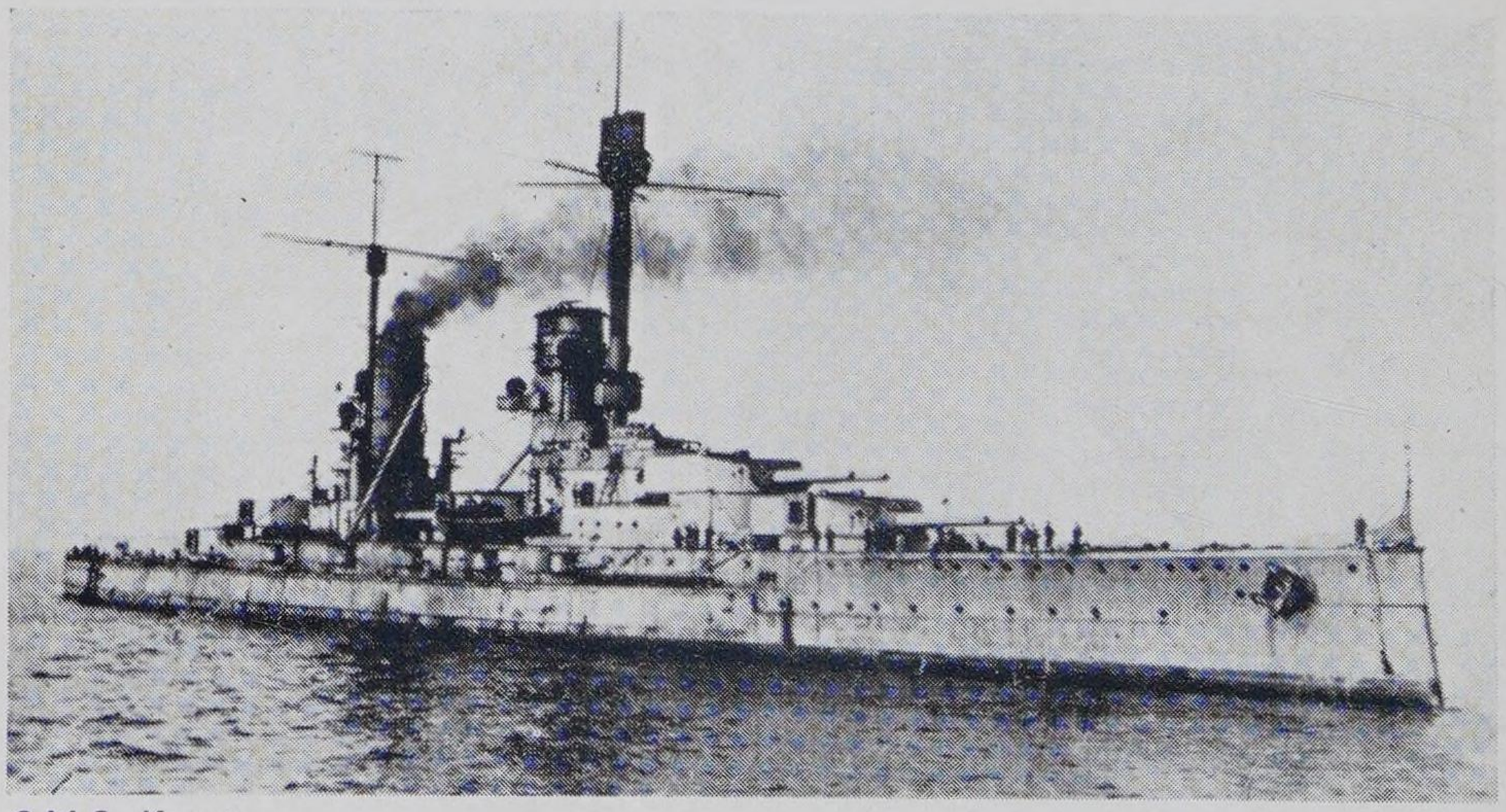
BADEN CLASS.

Length: 623⅓ ft. *Beam:* 99 ft. *Displacement:* 28,075 tons.
Turbines: 4 screws. 52,800 h.p. 22¼ knots.
Guns: 8—15 in. 16—5.9 in. 4—3.4 in. A.A. *Torpedo tubes:* 5—23.6 in.
Armour: belt 13¾ in., turrets 13¾ in. *Complement:* 1171-1,271.

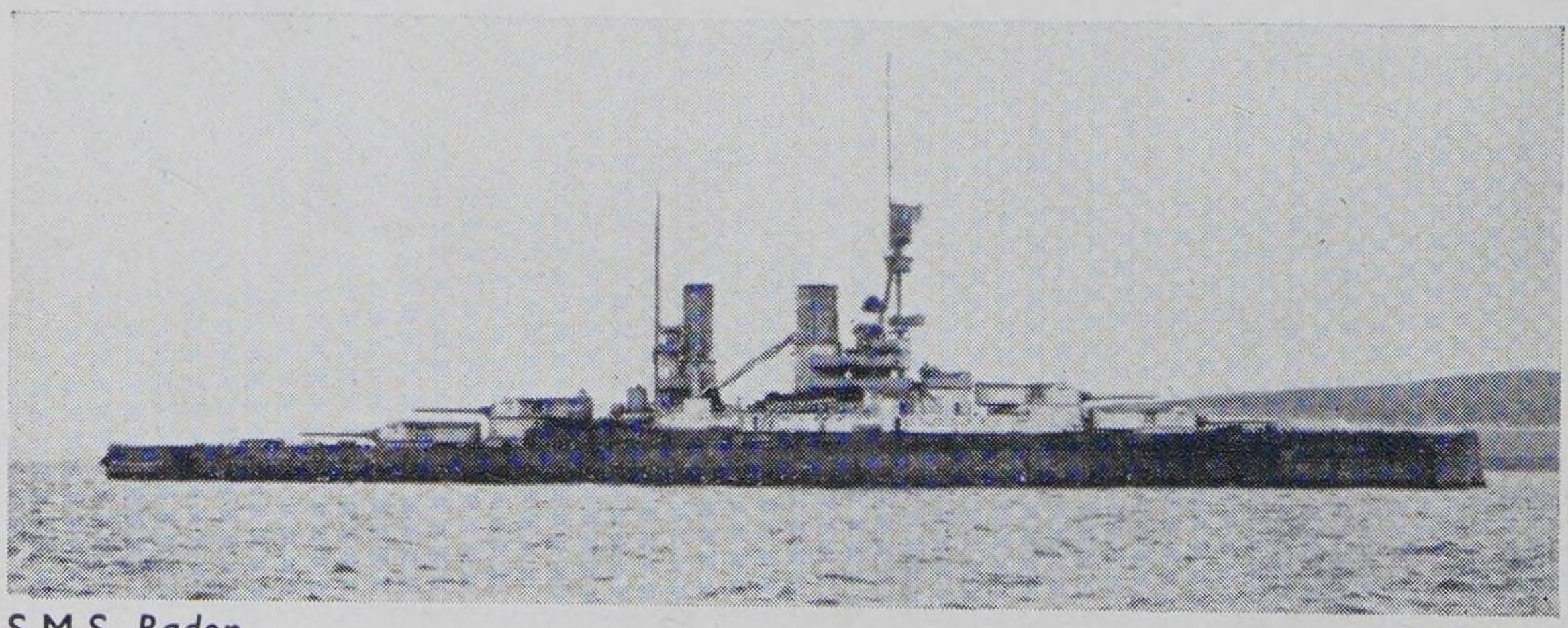
Name	*Completed*	*Builder*	
Baden	11/1916	Sch.	1921 Target and Sunk
Bayern	3/1916	How.	1934-5 Raised and Scrapped



S.M.S. *Koenig Albert.* [*H.S. & R*



S.M.S. *Koenig.* [*N.P.C*



S.M.S. *Baden.* [*H.S. & R.*

Sister ships: Work was stopped on *Sachsen* and *Wurttemberg* in 1917.
Bayern: 1918, Surrendered. 1919, Scuttled.
Baden: 1917, Flagship C. in C. 1918, Surrendered. 1919, Scuttled but raised and used as target before being sunk in 1921.

German Battle Cruisers

Mention must be made of the heavy armoured cruiser *Bluecher* which was intended to match our first battle cruisers. Purposely misleading information was allowed to leak out that the "Invincibles" would be similar to the *Dreadnought* but with 9.2 in. guns. The *Bluecher* was therefore built on the same plan as the "Westfalens" with 8.2 in. guns. She took her place with the German battle cruisers but was out-gunned and sunk in the first major action at the Dogger Bank in 1915.

S.M.S. BLUECHER.

Length: 530½ ft. *Beam:* 80½ ft. *Displacement:* 15,500 tons.
Triple expansion: 3 screws. 32,000-44,000 h.p. 24½-26 knots.
Guns: 12—8.2 in. 8—5.9 in. 16—3.4 in. *Torpedo tubes:* 4—17.7 in.
Armour: belt 6¾ in., turrets 6¾ in. *Complement:* 847-929.
She was fitted with tripod foremast in 1914.

Name	*Completed*	*Builder*	
Bluecher	9/1909	K.Dy.	1915 Sunk at Dogger Bank

The *Von der Tann*, the first German battle cruiser, was a fine ship which created a great impression at the Coronation Naval Review in 1911. Like most German battle cruisers she was built and engined by Blohm & Voss, Hamburg, and was the first large German warship with turbines and quadruple screws.

S.M.S. VON DER TANN.

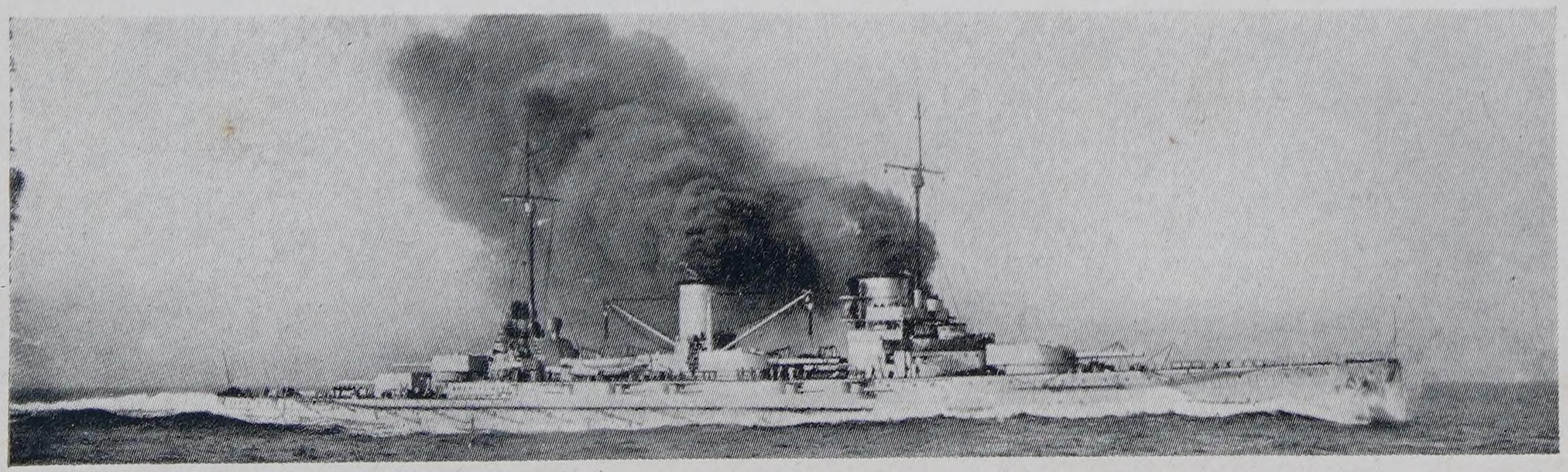
Length: 562 ft. *Beam:* 87 ft. *Displacement:* 19,100-21,000 tons.
Turbines: 4 screws. 43,600-79,800 h.p.† 25-28 knots.
Guns: 8—11 in. 10—5.9 in. 16—3.4 in.* *Torpedo tubes:* 4—17.7 in.
Armour: belt 10½ in., turrets 9 in. *Complement:* 923.
*Later removed and 4—3.4 in. A.A. added.
†Highest of various figuers quoted for maximum h.p.

Name	*Completed*	*Builder*	
Von der Tann	9/1910	B.&V.	1930-4 Raised and Scrapped

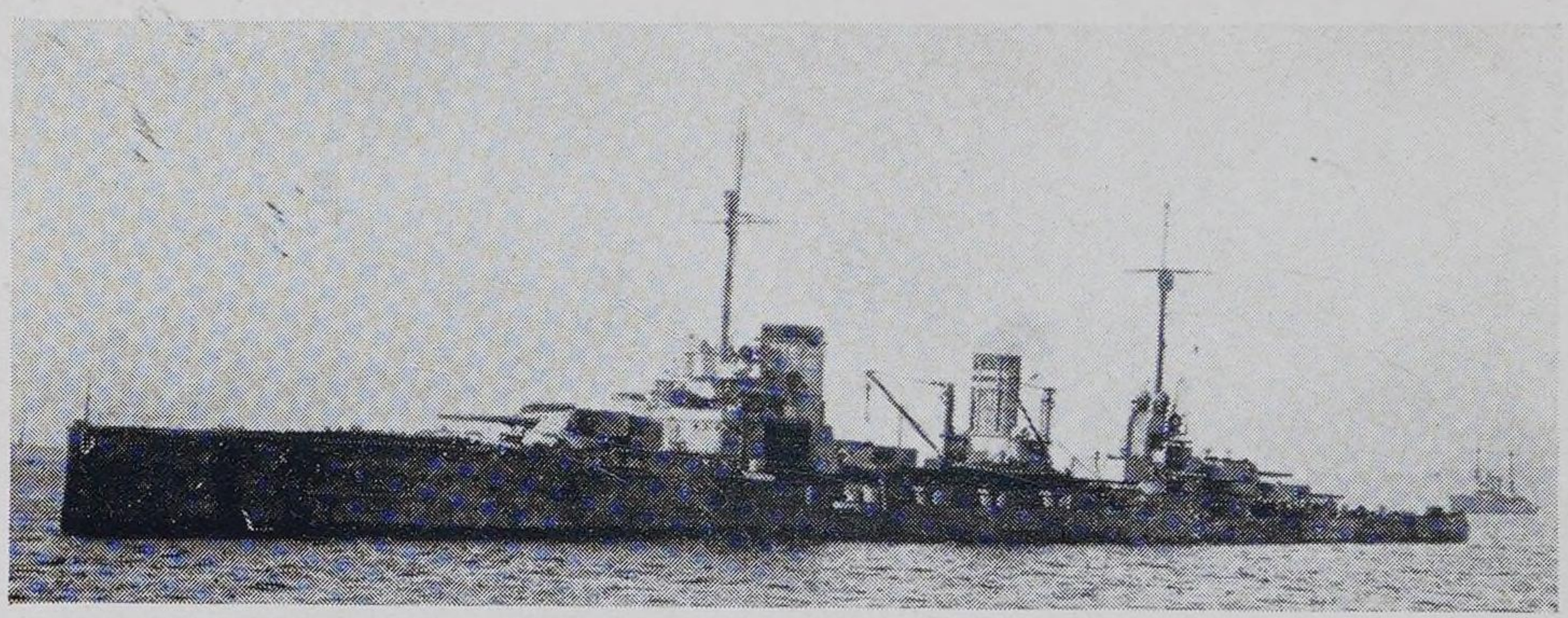
1916, Jutland. 1918, Surrendered. 1919, Scuttled.

S.M.S. *Von der Tann*, the first of the German battle cruisers, and the first large German warship with turbines and quadruple screws.

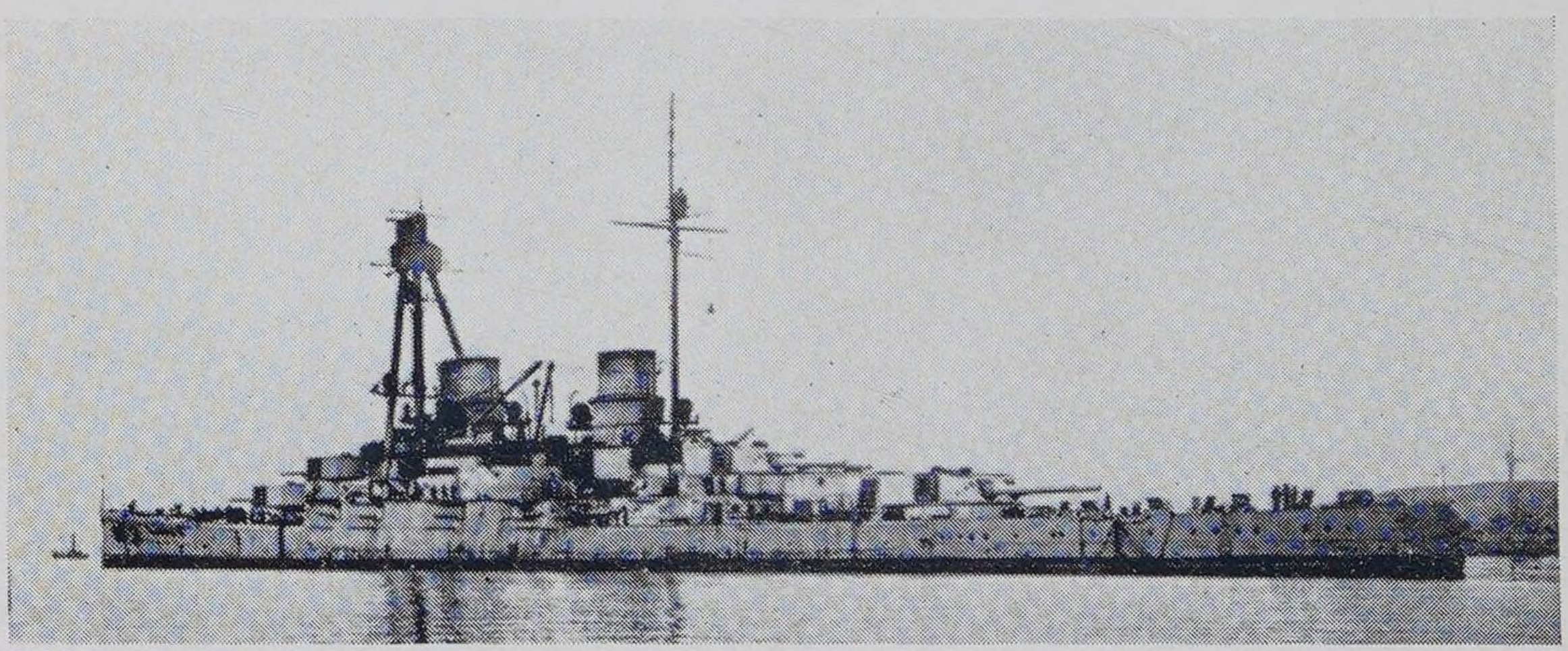
Below: S.M.S. *Moltke*, a battle cruiser with 11 in. guns in the same turret arrangement as the Kaiser class battleships.



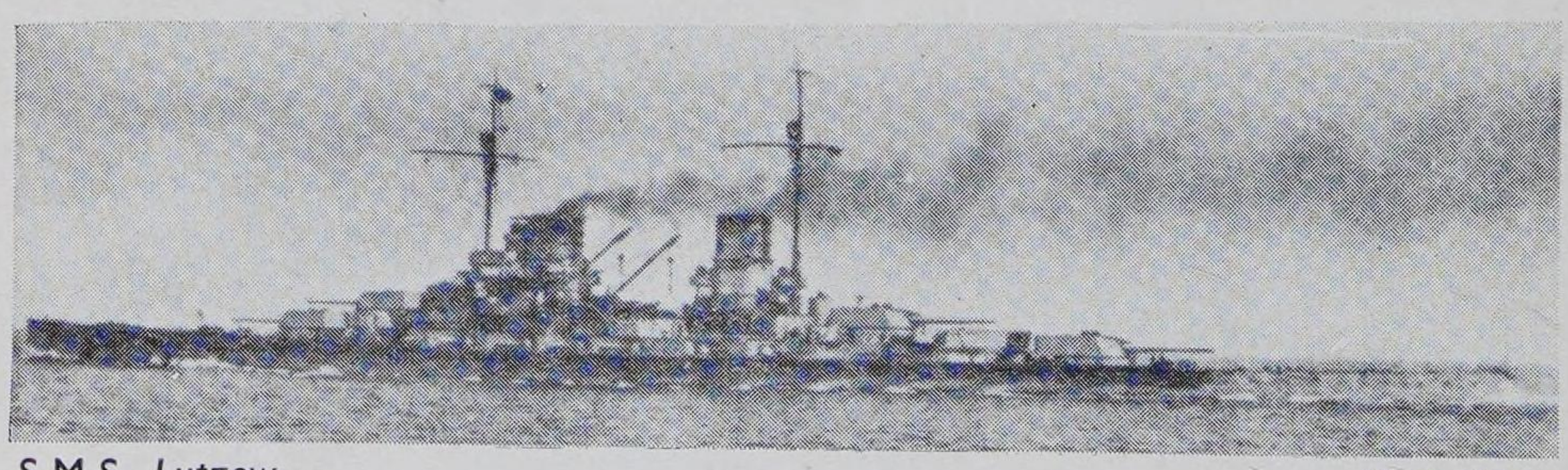
S.M.S. *Seydlitz*, flagship of the German High Seas Scouting Force, after the battle of Jutland. [*I.W.M*



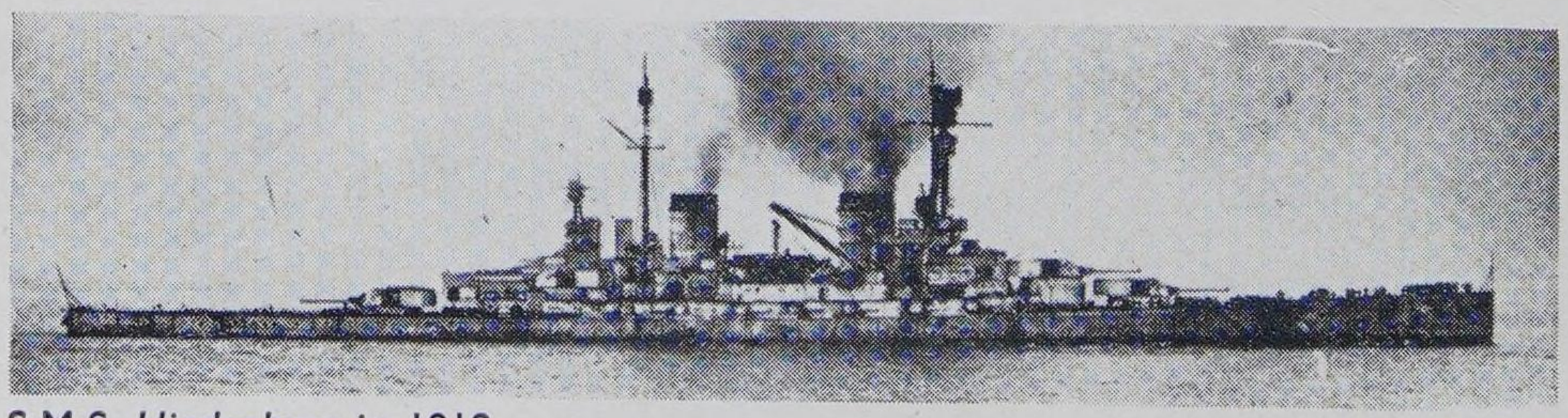
S.M.S. *Seydlitz.* [H.S. & R.



S.M.S. *Derfflinger* in 1918. [I.W.M.



S.M.S. *Lutzow* [P. A. Vicary



S.M.S. *Hindenburg* in 1918. [N.P.C.

The next three ships were very successful having the same turret arrangement as the " Kaiser " class battleships but with 11 in. guns in place of 12 in.

MOLTKE CLASS.

Length: 610 ft. *Beam:* 96¾ ft. *Displacement:* 22,640 tons.
Turbines: 4 screws. 70,000-86,000 h.p. 27-29 knots.
Guns: 10—11 in. 12—5.9 in. 12—3.4 in.* *Torpedo tubes:* 4—19.7 in.
Armour: belt 10½ in., turrets 9¼ in. *Complement:* 1,053-1128.
*Later removed and 2 or 4—3.4 in. A.A. added.

Name	*Completed*	*Builder*	
Moltke	10/1911	B.&V.	1927-9 Raised and Scrapped
Goeben	4/1912	B.&V.	

Moltke: 1915, Dogger Bank. 1916, Jutland. 1918, Surrendered. 1919, Scuttled.
Goeben: 1914, Mediterranean, escaped to join Turkish fleet. Twice mined. As the Turkish *Yavuz* she is the only German ship of this era still (1959) in existence.

S.M.S. SEYDLITZ

Length: 656 ft. *Beam:* 93⅓ ft. *Displacement:* 24,610 tons.
Turbines: 4 screws. 63,000-100,000 h.p. 27-30 knots.
Guns: 10—11 in. 12—5.9 in. 12—3.4 in.* *Torpedo tubes:* 4—19.7 in.
**Armour:* belt 11¾ in., turrets 9¾ in. *Complement:* 1,068-1143.

Name	*Completed*	*Builder*	
Seydlitz	5/1913	B.&V.	1929-30 Raised and Scrapped

1914, flagship of the High Seas Scouting Force, the equivalent of our Battle Cruiser Force. 1915, Dogger Bank. 1916, Jutland. 1918, surrendered. 1919, scuttled. Like her British opposite number H.M.S. *Lion*, she was badly damaged at Dogger Bank and Jutland. Both ships saw the maximum amount of action and survived tremendous punishment.

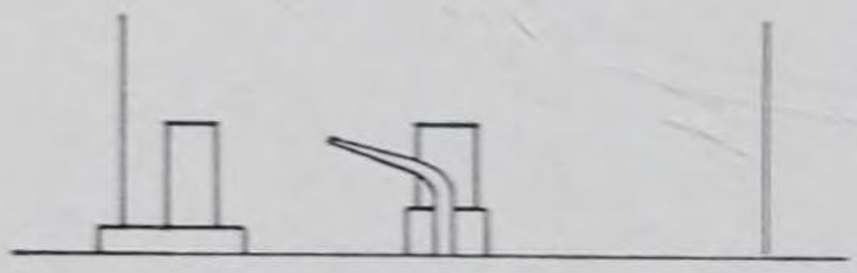
DERFFLINGER CLASS.

Length: 689 ft. *Beam:* 95¼ ft. *Displacement:* 26,180-28,000 tons.
Turbines: 4 screws. 85,000 h.p. 27-28 knots.
Guns: 8—12 in. 12 to 14—5.9 in. 4—3.4 in. A.A. *Torpedo tubes:* 4—19.7 in.
Armour: belt 11¾ in., turrets 10¾ in. *Complement:* 1,112-1214.

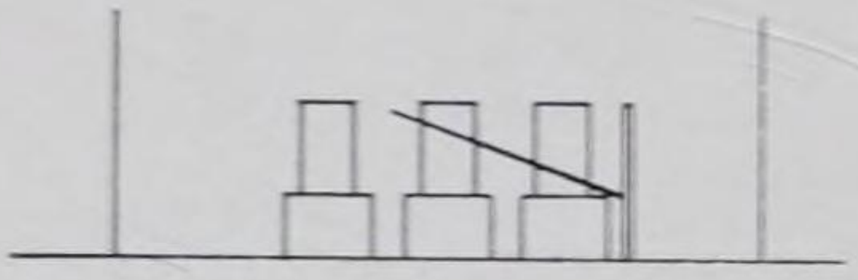
Name	*Completed*	*Builder*	
Derfflinger	7/1914	B.&V.	
Lutzow	8/1915	Sch.	1916 Sunk at Jutland
Hindenburg	5/1917	Wn.Dy.	1930-2 Raised and Scrapped

Derfflinger: 1915, Dogger Bank. 1916, Jutland. 1918, surrendered. 1919, scuttled.
Lutzow: 1916, sunk at Jutland.
Hindenburg: 1918, surrendered. 1919, scuttled.

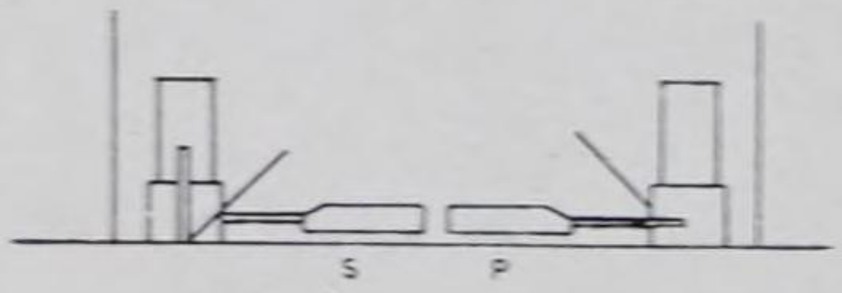
RECOGNITION FEATURES



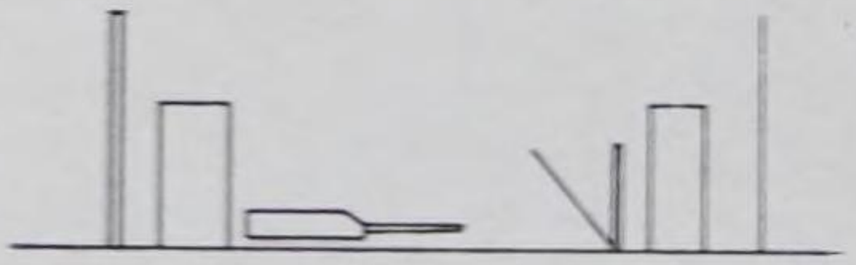
WESTFALEN
NASSAU
POSEN
RHEINLAND



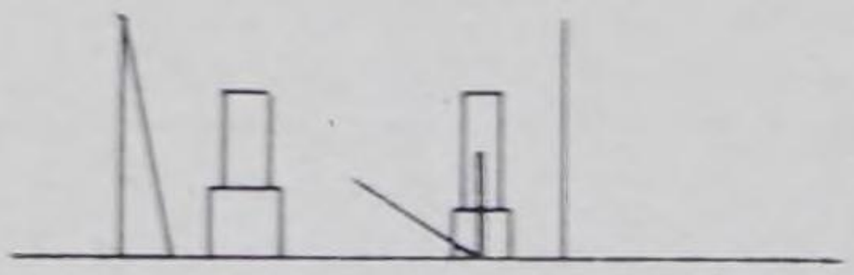
THURINGEN
HELGOLAND
OSTFRIESLAND
OLDENBURG



KAISER*
FRIEDRICH DER GROSSE*
KAISERIN
PRINZ REGENT LUITPOLD
KOENIG ALBERT



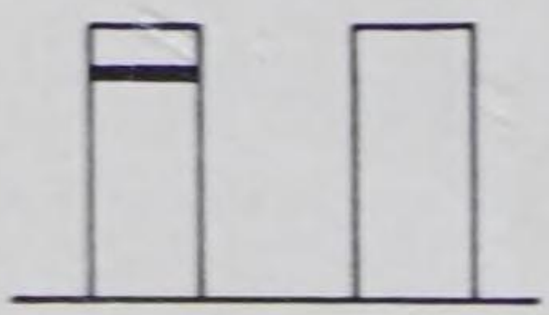
KOENIG
MARKGRAF
GROSSER KURFURST
KRONPRINZ WILHELM



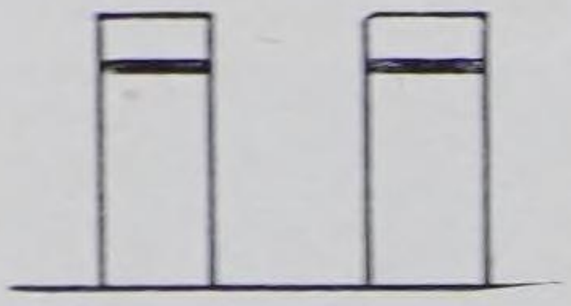
BADEN
BAYERN

*Friedrich der Grosse and Kaiser later had heavy foremast like the "Koenig" class.

Funnel Bands — 1st Division - White Bands; 2nd Division -

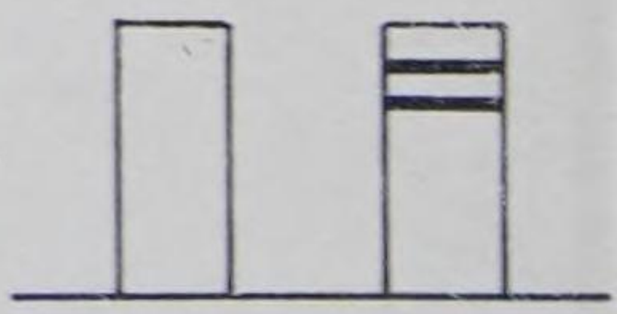


1st Ship



2nd Ship

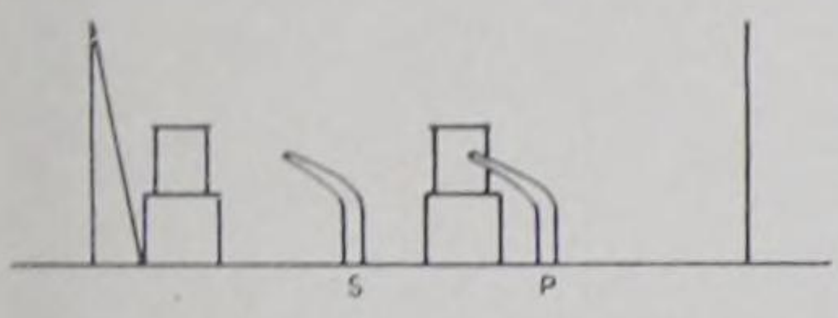
(or)



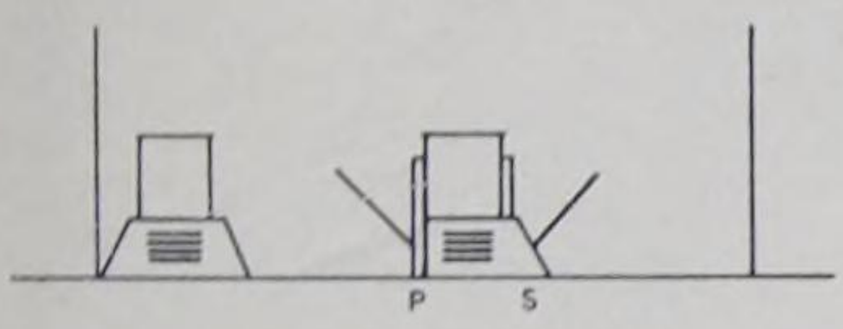
2nd Ship

OF GERMAN BATTLESHIPS

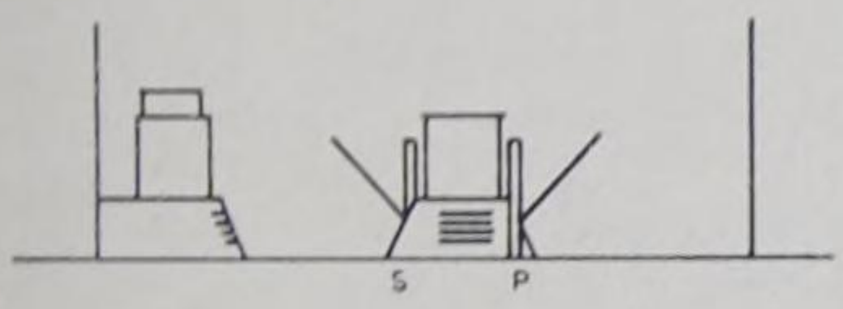
(not to scale)



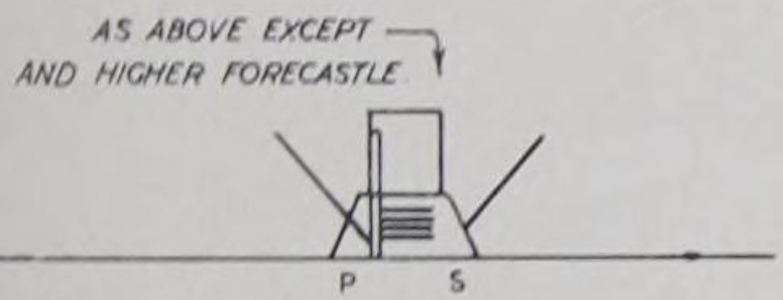
BLUECHER



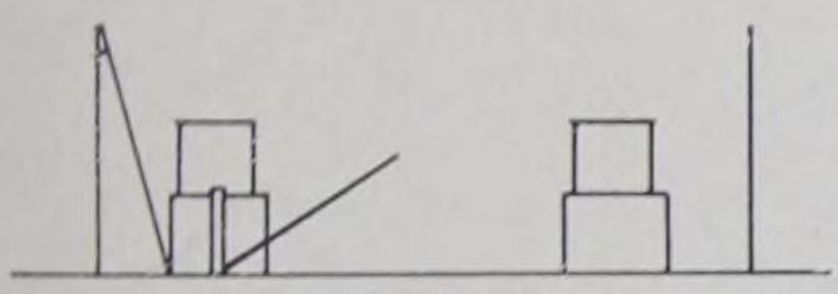
VON DER TANN



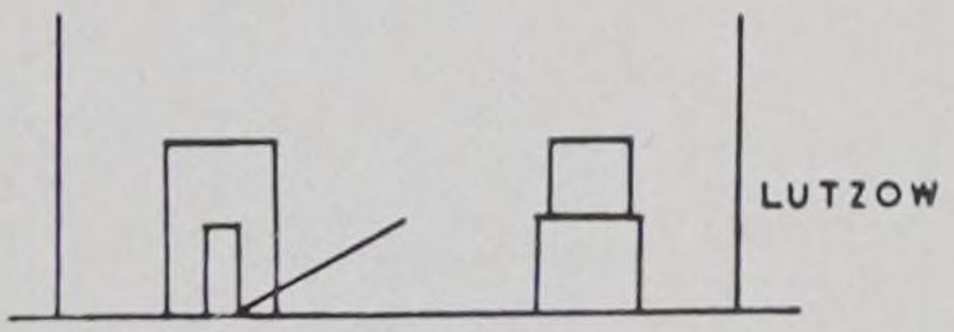
GOEBEN
MOLTKE

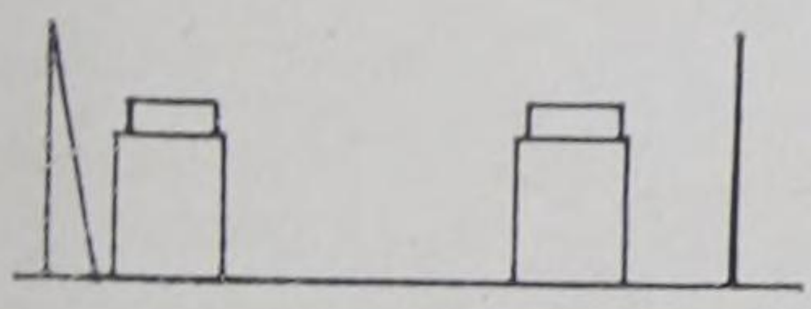


SEYDL TZ



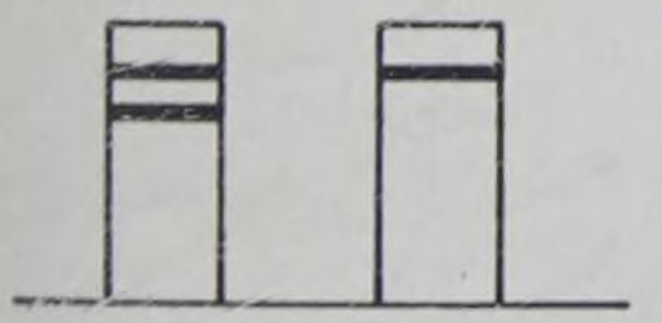
DERFFLINGER



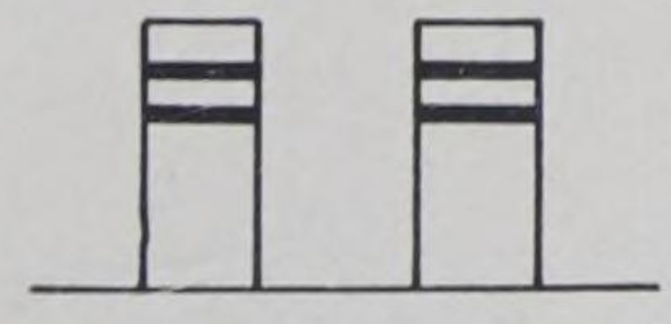


HINDENBURG

Red Bands; 3rd Division - Yellow Bands; 4th Division - Blue Bands



3rd Ship



4th Ship

Note: *Bands indicate position in line rather than ships. Third and fourth funnels are not used.*

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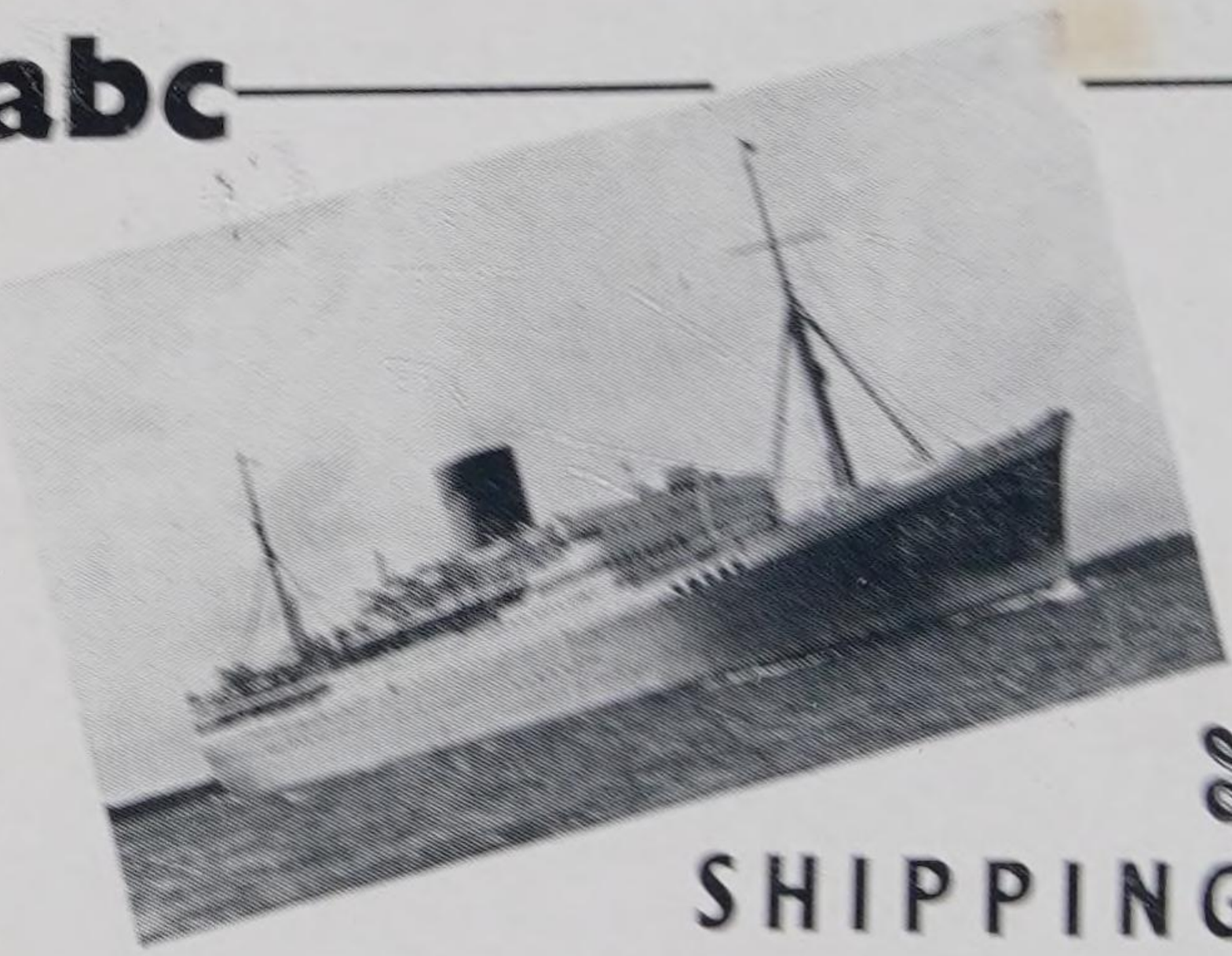

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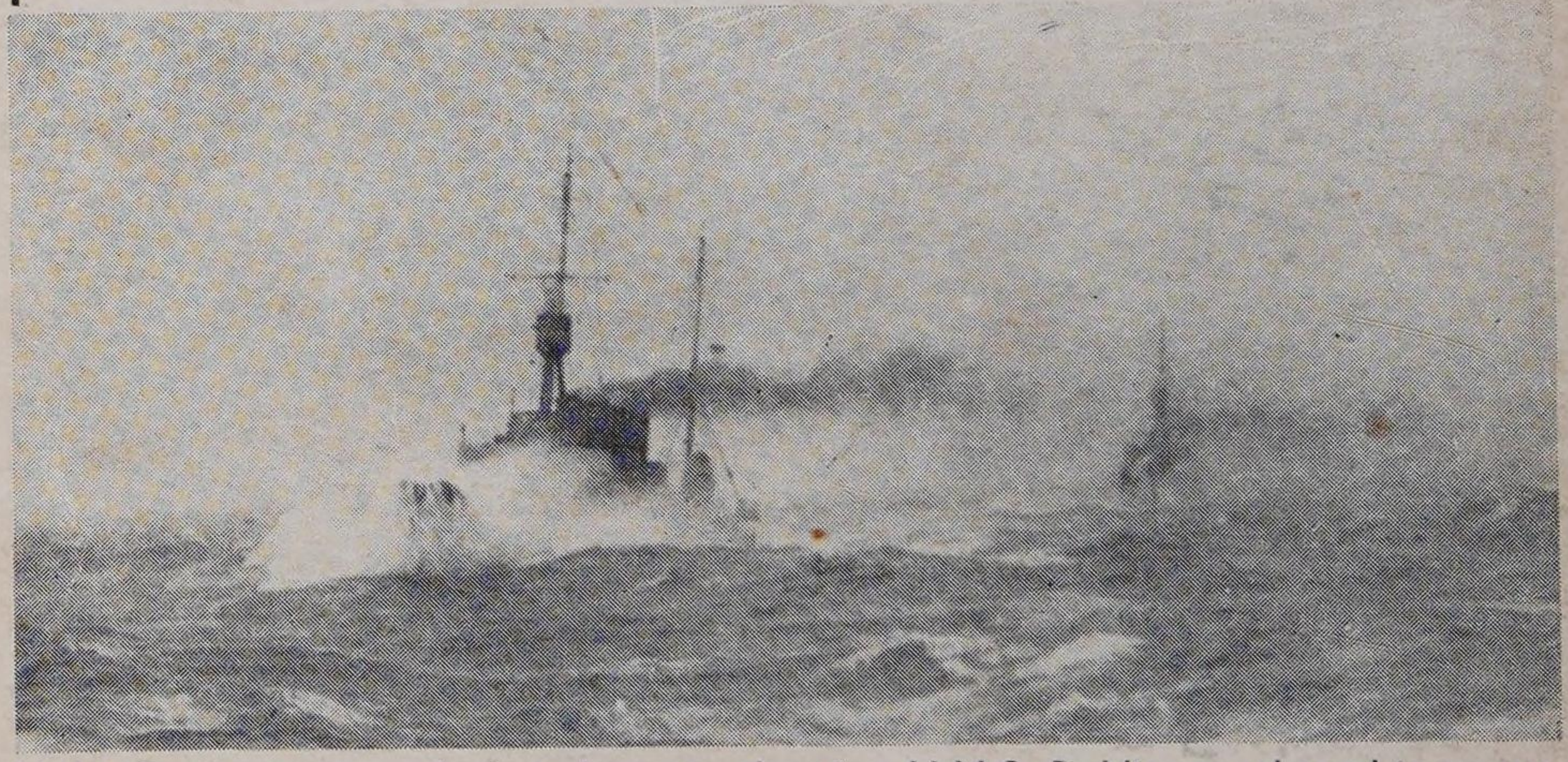

Light Cruisers at sea during the war, showing H.M.S. *Dublin* smothered in spray.
[*I.W.M*

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